Public Affairs Office
George C. Marshall Space Flight Center
National Aeronautics and Space Administration
Huntsville, Alabama

Phone: 876-1102, 876-1959
(Charles Kurtz - Fayetteville, Tenn. 433-4958)

March 2, 1965

IMMEDIATE
RELEASE

Release No. 65-48

HUNTSVILLE, Ala. --The NASA-Marshall Space Flight Center has awarded a $1,260,000 contract to the Quinn Construction Co., New Orleans, La., for building an addition to a Central Computer Facility at Slidell, La.

The computer facility is used to support the Michoud Operations in New Orleans and the Mississippi Test Operations, Hancock County, Miss.

The New Orleans firm will build an addition of two stories and basement to the computer building. A smaller two story extension will be added to an office area.

Exterior of the additions will match the existing building. The structure is of brick, coated metal siding and curtain wall construction.

New portions will have a passenger elevator, a central vacuum cleaning system, clean room facility and elevated floor system in computer rooms. Quinn Construction will also make alterations to the present building.

Completion of the additions, which will add some 40,000 square feet of floor area to the building, are scheduled for early next year.

MORE

The original portion of the Slidell computer facility building was built by the Federal Aviation Agency as an air-route control center and was turned over to NASA when it became surplus to FAA needs.

NASA altered the building in 1962 to accommodate its high speed computing equipment.

The computer Facility will directly support the NASA-Michoud Operations management group; Chrysler Corp., S-1 stage contractor; Boeing Co., S-1C stage contractor; North American Aviation S-II stage contractor; and Mason-Rust, support services contractor.

The facility is located 23 miles from the Michoud plant. It is managed as part of the Michoud Operations.

The additions were designed by Claude E. Hooton and Associates, New Orleans, La., under the direction of the MSFC Facilities and Design Office.

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Public Affairs Office
George C. Marshall Space Flight Center
National Aeronautics and Space Administration
Huntsville, Alabama

Phone: 876-1102, 876-1959
(Charles Kurtz - Fayetteville, Tenn. 433-4958)

FOR RELEASE:

2 p.m., March 5, 1965

To be released simultaneously in Washington, D. C.

HUNTSVILLE, Ala. --The National Aeronautics and Space Administration has selected nine firms to provide engineering, fabrication, and institutional support services to six laboratories and three offices of the Marshall Space Flight Center, Huntsville, Ala.

Cost of the work is estimated at $58.5 million for one year. Some 4,700 personnel will be required to provide the services.

The cost-plus incentive-award fee contracts are to be for one year. The six laboratory engineering support contracts and one office support contract have provisions for four additional one-year renewals. Two contracts for institutional support services have provisions for two consecutive one-year extensions.

The firms to receive the awards were among 14 firms selected for negotiations on Dec. 18, 1964. (See NASA Hq. News Release No. 64-322, Dec. 18, 1964.)

All of the work is primarily in support of the nation's Saturn/Apollo launch vehicle program. Most of the work will be performed on the premises of the Marshall Center. However, some will be performed in contractor facilities at Huntsville and other locations.

Sperry Rand Corp., Space Support Div., Huntsville, Ala., will support the Astrionics Laboratory. The firm will provide approximately 880 engineers, technicians and other support personnel under a contract which will total about $12,690,000. The laboratory develops electronic equipment for multi-stage launch vehicles. Areas of work will include component evaluation and qualification testing; facilities engineering; and design and evaluation of electro-mechanical, guidance and control and inertial systems.

Brown Engineering Corp., Huntsville, under a $12,350,000 contract will provide support to the Propulsion and Vehicle Engineering Laboratory. Brown will employ approximately 920 personnel. These engineers and technicians will work on research and development projects in the fields of structures, materials and propulsion and mechanical systems. Other areas include conceptual and preliminary design studies, vehicle systems engineering, and program coordination.

Vitro Corp., Vitro Services Div., Ft. Walton Beach, Fla., under a $4,101,000 contract will employ 550 personnel to support the Test Laboratory's work in large booster and component testing. The support work includes data acquisition and instrumentation for all test operations; and reduction of test data acquired from component systems, subsystems, dynamic, engine and booster testing operations. The contractor will also handle power, control, communications, television

and photography in the test area; facility activation and operation; design and operational support services and shop services.

Hayes International Corp., Birmingham, Ala., will support the Manufacturing Engineering Laboratory. Some 355 people will be required under the $6,835,000 contract to support the laboratory in the manufacture, assembly and checkout of experimental and prototype boosters and space vehicles. Some of the specific work areas include tool modification and maintenance; manufacture reliability assessment; engineering processing; engineering tool design; plant engineering; data processing; and precision model and mockup processing. Saturn V boosters being assembled in the ME shops include a static test stage and two flight stages.

Northrop Corp., Northrop Space Laboratories, Huntsville, will support the Aero-Astrodynamics Laboratory. Some 200 engineers, scientists, and other support personnel are to be employed under the $3,905,000 contract. The contractor will work in areas including aero-astrophysics; aero-dynamics; flight evaluation and operations studies; dynamics and control; flight mechanics; Saturn systems concepts planning and technical documentation.

Spaco, Huntsville, under a $7,002,000 contract will employ some 540 personnel to support the Quality and Reliability Assurance Laboratory. Tasks include checkout data acquisition and instrumentation;

quality engineering analysis evaluation; calibration and environmental testing; engineering support for design, development and test documentation preparation; reliability and related tasks; and fabrication and related services. In addition the firm will teach reliability and quality assurance training courses sponsored by the laboratory.

Rust Engineering Co., Birmingham, under a $830,000 contract will support the Facilities and Design Office. Some 70 architects, engineers, draftsmen, planners and editor-writers will provide services under the contract. Work includes engineering design, master planning and construction inspection of facilities.

RCA Service Co., Camden, N. J., will support the Management Services Office. The $5,030,000 contracts will involve 840 people. The firm will provide many of the general administrative services functions at the Marshall Center. These include communications, reproduction, graphic arts and model design services, technical publications, technical documentation, and protective services. Others include custodial services, maintenance and repair of photographic equipment, safety engineering, refuse collection, laundry and medical services.

Management Services Inc., Oak Ridge, Tenn., under a $3,903,000 contract will provide support services to the Technical Services Office. The firm will provide vehicle support services, photographic support, instrumentation repair; and chemical, hydraulic

and ultrasonic cleaning, general maintenance and repair. MSI will employ some 425 people.

Under terms of the cost-plus incentive-award fee contracts, the firms receive a minimum and may receive an additional award fee for superior performance, keeping costs within estimates and meeting schedules.

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Phone: 876-1959, 876-1102
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March 8, 1965

IMMEDIATE RELEASE

Release No. 65-51

HUNTSVILLE, Ala. --Greenhut Construction Co., Inc., Pensacola, Fla., has received a $276,856 contract to build an addition to a test laboratory and modifying test stand facilities at the NASA-Marshall Space Flight Center.

The Pensacola firm will construct a 4,600 square-foot addition to the MSFC Test Laboratory Engineering building. This addition will be used as an acoustic control and communication center.

Other work under this contract includes replacing the deflector pit and relocating the observation bunker at a power plant test stand. Single engines are tested at this facility.

The work is scheduled to begin immediately and to be completed in November.

Army Engineers at the Mobile district office awarded the contract for the Marshall Center.

The acoustic control and communication center addition was designed by Northington, Smith & Kranert, Huntsville. The test stand modifications were designed by Aake F. Hedman & Associates, Chattanooga, Tenn. The projects were designed under the supervision of the MSFC Facilities and Design Office.

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Public Affairs Office
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Huntsville, Alabama

Phone: 876-1102, 876-1959
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March 15, 1965

IMMEDIATE RELEASE

Release No. 65-57

HUNTSVILLE, Ala.--Ralph T. Lally, Jr., of the Marshall Space Flight Center's Michoud Operations in New Orleans, topped a list of 24 employees who received a total of $975 recently from the Incentive Awards Committee for money-saving ideas.

Lally received a $495 award for his suggestion to eliminate unnecessary sketches of standard electrical and mechanical test equipment in functional test procedures.

Others receiving awards were Hans Nein, Propulsion and Vehicle Engineering Laboratory, $65; William C. Cunningham, Manufacturing Engineering Laboratory, $40; and Althea H. Schwarzwalder, Michoud Operations, $35.

Those receiving $25 awards were Wilma J. Young, Management Services Office; Thomas Barkley, Propulsion and Vehicle Engineering Laboratory; Carl P. McMurray, Purchasing Office; and William C. Cunningham, Manufacturing Engineering Laboratory.

MORE

Receiving $15 awards were George D. Switzer, Technical Services Office; Lester Katz, Cleo J. Peterson, and Carrol D. Hooper, Propulsion and Vehicle Engineering Laboratory; LaVera S. Porterfield, Annie J. Hollingsworth, and Albert R. Allen, Management Services Office; Flemon L. Hendrix and Sarah P. Brock, both of the Quality and Reliability Assurance Laboratory; Howard R. Arwood and Milton E. Whitehead, both of the Manufacturing Engineering Laboratory; Walter D. Weaver, Jr., Mississippi Test Operations; Robert B. Gibson, Test Laboratory; Joseph D. Hinesley, Purchasing Office; Rose M. Berthelot, Michoud Operations; and Ida L. Sabelhaus, Computation Laboratory.

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March 15, 1965

IMMEDIATE RELEASE

Release No. 65-59

HUNTSVILLE, Ala. --The NASA-Marshall Space Flight Center will conduct the second in a series of 12 Research Achievement Reviews March 25 in Morris Auditorium at 9 a. m. The series is sponsored by the Research Projects Laboratory, headed by Dr. Ernst Stuhlinger.

The presentation, entitled "Chemical Propulsion Research and Cryogenic Technology," is expected to attract about 200 persons.

The Research Achievement Review is designed to explain MSFC research accomplishments and provide resultant research information. The series will cover all types of research conducted under sponsorship of this Center.

Taking part in the cryogenic portion of the meeting will be C. Gentry Miles, Research Projects Laboratory, and Hans G. Paul and Charles C. Woods of the Propulsion and Vehicle Engineering Laboratory.

Chemical propulsion will be handled by Miles and Richard N. Eilermann and Keith B. Chandler, of P&VE Lab.

Question-and-answer periods will follow each part of the meeting.

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Phone: 876-1102, 876-1959
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March 16, 1965

IMMEDIATE RELEASE

Release No. 65-61

HUNTSVILLE, Ala. --The NASA-Marshall Space Flight Center, during March and April, is furnishing one judge each for more than 20 regional, state and local science fairs.

Alabama is included in nine of these competitive events.

NASA installations throughout the nation have been providing science fairs with their scientific and engineering personnel as judges since 1961.

The purpose of this participation is to stimulate interest among students in space sciences by encouraging them to investigate problems related to NASA programs and through the presentation of awards and trips to NASA Centers.

Besides the Alabama fairs, the Marshall judges will be visiting in Tennessee, Louisiana, Mississippi, Arkansas, and Missouri.

Contributing their services to these science and engineering fairs are Robert Schwinghamer and John Farrer of the Manufacturing Engineering Laboratory, Doris Chandler and Gilbert Wilhold of the Aero-Astrodynamics Laboratory, and Charles Greer and Ismail Akbay of the Saturn V Program Office.

From the Propulsion and Vehicle Engineering Laboratory will come Alfred Orillion, Gene Carpenter, John Haire, James Riquelmy, Bill Dixon, and Dr. Nathan Welch.

MORE

Rounding out the group of MSFC judges are Clyde Foster and Dr. James Morelock of Computation Laboratory; Hank Williams, Michoud Operations; James Carter, Future Projects Office; Ron Weesner, Engine Program Office; Donald Russell, Astrionics Laboratory; Eugene Urban, Research Projects Laboratory; Russell Walker, Projects Logistics Office of Industrial Operations; Fritz Pauli, Test Laboratory; and William Armistead, Saturn I/IB Program Office.

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March 17, 1965

IMMEDIATE RELEASE

Release No. 65-64

HUNTSVILLE, Ala. --National Aeronautics and Space Administration Headquarters, Washington, D. C. has published 14 special scientific and technical documents as a means of disseminating new information to private businesses. Six of these were authored by NASA-Marshall Space Flight Center personnel.

The Marshall-compiled reports are: "Reliable Electrical Connections," a two-part publication entitled "Selected Welding Techniques," "Welding for Electronic Assemblies," "Effects of Low Temperatures on Structural Metals," and "Precision Tooling Techniques."

The report on electrical connectors can be purchased from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.

The others can be obtained from the U. S. Government Printing Office, Washington, D. C.

# # #

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Huntsville, Alabama

Phone: 876-1102, 876-1959
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March 18, 1965

IMMEDIATE RELEASE

Release No. 65-66

HUNTSVILLE, Ala.--Dr. Wernher von Braun, director of the NASA-Marshall Space Flight Center, has rewarded 30 employees with a total of $7,675 for an assortment of money saving suggestions, inventions and superior performance in connection with the development of Saturn space vehicles here.

He also presented 30 year service pins to two employees. They are Walter H. Pruitt, who started his federal career with the Army in 1929, and Harry C. Haven, who joined the Department of the Navy in 1934 and has worked for the government since. Both are now employed in MSFC's Astrionics Laboratory.

Adolf L. Herrmann, Astrionics, a senior engineer at Marshall, received $250 for inventing a locking device.

Two employees were paid a total of $475 for suggestions that will save the government a total of $8,718.

Opal P. Tabor, a clerk-typist in the Executive Staff, received $325 for her proposal that various slides and other art work be copied in the Reproduction Section rather than printed in the Photographic Laboratory.

MORE

Talmadge J. Pearson, a mechanic in the Manufacturing Engineering Laboratory, suggested the installation of ladder assemblies in the Saturn V mock-up area. He was presented $150 for the suggestion that will save the government $2,278.

Dr. von Braun presented a $500 Group Achievement Award to be shared by 10 employees in the Studies Section of the Purchasing Office.

They are William J. Miller, Raymond A. Parsley, William D. Adkins, Clarence H. Brown, Ralph W. Clatworthy, Jimmie W. Glover, Francis P. Morrison, John M. Stuart, Thomas D. Shoe and Samuel T. Willis.

The following employees received awards for exceptional performance of duty:

James H. Coleman, $350, Quality and Reliability Assurance Laboratory; Dwight J. Locke, $425, Propulsion and Vehicle Engineering Laboratory; Harold R. Lowery, $425, Astrionics; Archie D. Wilder, $250, Purchasing Office; Hazel H. Sanders, $250, P&VE; Donald W. Mann, $250, Astrionics; Buddie J. Martin, $250, Research and Development Operations staff.

Melvin E. Shelton, $350, Management Services Office; Zack Thompson, $425, Astrionics; James M. Sisson, $425, Saturn I/IB Program Office; Harlin H. Aderhold, $350, P&VE; Werner G. Tiller, $500, Quality and Reliability Assurance Laboratory; Martin F. Sedlazek, $425, Saturn V Program Office; Melvin Brooks, $500, Astrionics; Walter T. Mitchell,

$425, Quality and Reliability Assurance Laboratory, and Lowell D. Martin, $350, Financial Management Office.

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March 19, 1965

IMMEDIATE RELEASE

Release No. 65-67

HUNTSVILLE, Ala. --Two NASA-Marshall Space Flight Center employees are scheduled to present papers at the international meeting of the Institute of Electrical and Electronic Engineers March 22-25 in New York City.

The IEEE is the largest professional engineering society boasting a membership of 155,000.

Representing Marshall at the gathering will be Dr. Joseph Randall, Astrionics Laboratory and D. Morris Schmidt, Quality and Reliability Assurance Laboratory.

Dr. Randall's presentation, co-authored with an associate, Earl J. Reimbolt, is entitled "Analytical Studies Defining Laser Experiments for Future Technology Satellites." It deals primarily with laser and quantum electronics.

"Automatic Checkout Systems for Rocket Stages of the Saturn V Manned Space Vehicle" is the topic of Schmidt's paper. Its subject involves the use of computers to the automatic control of quality acceptance of space vehicles.

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March 30, 1965

IMMEDIATE RELEASE

Release No. 65-73

HUNTSVILLE, Ala.--One of the highest ranking women in government, Mrs. Esther Peterson, is scheduled to arrive Thursday afternoon (April 1) at the NASA Marshall Space Flight Center to take part in a supervisor orientation session in connection with the President's Equal Employment Opportunities for Women program.

The Marshall Center reports more than 200 women in a career development program here, with more than 90 of them in the scientific, engineering and related fields.

A special assistant to the President, Mrs. Peterson is also assistant Secretary of Labor.

Accompanied by Miss Evelyn Harrison, deputy director of the Civil Service Commission's Bureau of Programs and Standards, Mrs. Peterson is to meet with Dr. Wernher von Braun, director of the Marshall Space Flight Center, shortly after she arrives here.

During the evening, she is slated as main speaker at a dinner meeting at the Redstone Arsenal Officers' Club. Her topic will be "Career Women's Responsibilities to other Career Women." Miss Harrison will also speak on the Civil Service Commission's

MORE

responsibilities in the EEO program. Other speakers are Mrs. Daisy Fields of the National Aeronautics and Space Administration Headquarters; and Harry Gorman, deputy director, Administrative, at MSFC.

Mrs. Peterson is to address Marshall Center supervisors Friday morning between 8:30 a.m. and 9:30 a.m. in Morris Auditorium, along with guests from the Army. She plans to cover President Johnson's views in support of the program.

Later in the day, she will receive a briefing on Marshall Center projects and tour two laboratories where giant Saturn space vehicles are assembled and tested.

Mrs. Peterson served as executive vice chairman of the President's Commission on the Status of Women, under the chairmanship of Mrs. Eleanor Roosevelt, from 1961 to 1963.

She also served a number of years as legislative representative of the Industrial Union Department of the AFL-CIO, a post she held when President Kennedy appointed here to the post she now occupies.

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March 31, 1965

IMMEDIATE RELEASE

Release No. 65-74

HUNTSVILLE, Ala. --Dr. Wernher von Braun yesterday launched a new "ship" at the NASA-Marshall Space Flight Center with a quart bottle of RP-1 rocket fuel.

The ship is a truck trailer or van officially designated "Saturn Craftsman Ship." The van's purpose is to carry out the theme "Quality workmanship in every phase of Saturn vehicle development."

Dr. von Braun, Marshall Center director, was presented at the "launching" ceremony by E. F. O'Connor, director of MSFC Industrial Operations.

The van is a mobile display vehicle holding components and subsystems of the Saturn launch vehicles selected to illustrate the extremely high quality workmanship necessary to achieve the reliability required for manned space flight.

The van was prepared and will be operated by Industrial Operations' Manned Space Flight Awareness Office, headed by Dr. Preston T. Farish.

The van will be made available to Saturn prime contractors and their suppliers of critical parts. The vehicle will visit contractor facilities throughout the country.

MORE

Dr. Farish said the van will be shown to vendors to impress upon them the importance of perfection in workmanship.

"Perfection is our goal," he said. "We want every worker in the Saturn/Apollo program to be aware of his responsibility, especially those working on Saturn man-rated vehicles, no matter how small his job may seem to him."

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Phone: 876-1959, 876-1102
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For Release:

Sunday, April 11, 1965

Release No. 65-84

MSFC: Michoud

HUNTSVILLE, Ala. --The firm of Mason-Rust has been awarded a new 10-month contract by the Marshall Space Flight Center to continue provision of support services at the Michoud Operations in New Orleans.

The $10,934,377 cost-plus-award-fee contract, to continue in force through December 31, 1965, contains provision for three consecutive one-year extensions.

Government owned and contractor operated, Michoud is the production site for first stages of the Saturn I, Saturn IB and Saturn V space vehicles to be used in NASA's Apollo manned lunar landing program.

Since its initial selection by NASA in December, 1961, Mason-Rust has furnished common services to both Government and contractor elements operating at the New Orleans facility.

These services include transportation and Michoud Port operations, security and safety, fire protection, photography, medical, food, supply, messenger and mail, communications, custodial, plant maintenance and repair, engineering, reproduction and documentation.

Mason-Rust will provide these services at the main Michoud complex in New Orleans and at its Computer Operations Office in nearby Slidell.

MORE

Major firms employed at the Michoud Operations are The Boeing Company Launch Systems Branch, Saturn V first stage (S-IC) contractor; Chrysler Corporation Space Division, Saturn I first stage (S-I) and Saturn IB first stage (S-IB) contractor, Telecomputing Services, Inc., computer operations contractor, and Mason-Rust.

This cost-plus-award-fee contract -- the first awarded at Michoud -- differs from a cost-plus-fixed-fee contract in that a contractor's fee is based on an evaluation of his performance, rather than on a fixed negotiated sum. In practice, a firm operating under a cost-plus-award-fee contract will be evaluated periodically to determine his (1) performance of work, (2) technical management, (3) business management, and (4) utilization of Government facilities and equipment.

The amount of any award fee will be added to a predetermined base fee for a six month period.

Mason-Rust, which now employes about 900 persons, is a joint venture of the Rust Engineering Company, Pittsburgh, Pa., and the Mason and Hangar-Silas Mason Company, Lexington, Ky.

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Phone: 876-1102, 876-1959
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April 27, 1965

IMMEDIATE RELEASE

Release No. 65-101

HUNTSVILLE, Ala. --Josef F. Blumrich of the NASA-Marshall Space Flight Center has received a patent on an invention designed to take the shock out of the "sit-down" of a space landing craft.

Blumrich, of the MSFC Propulsion and Vehicle Engineering Laboratory, received the patent on his invention entitled "Landing Pad Assembly for Aerospace Vehicles."

L. D. Wofford, Jr., associate chief counsel for patent matters at MSFC, said Blumrich has assigned all his rights to the patent to the U. S. government.

The Marshall Center inventor designed streets and "footpads" which will absorb shock during descent and anticipated "lateral sliding" of landing craft. The footpads are designed for both manned and unmanned space vehicles.

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Phone: 876-1102, 876-1959
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April 27, 1965

IMMEDIATE RELEASE

Release No. 65-102

HUNTSVILLE, Ala. -- Twenty employees of the NASA-Marshall Space Flight Center have received a total of $675 from the Incentive Awards Office for money-saving ideas in connection with the rocket development program.

The top award, $140, was shared by Mrs. Helen B. Orick and E. C. Wooton, both of the Public Affairs Office, who submitted a joint suggestion concerning an improved procedure for handling film requests.

Andrew R. Crutcher of the Astrionics Laboratory received a $100 award for suggesting a laboratory technique.

Others receiving awards were Rodney Drinkard, Astrionics, $75; James R. Scott, Astrionics, $50; Leldon M. Thompson, Propulsion and Vehicle Engineering Laboratory, $50 and $40; Buel T. Brasfield and Wilbur M. Culver, Manufacturing Engineering Laboratory, shared a $30 award; Marlin H. Chapman, Jr., Manufacturing Engineering, $30; William G. Smith, Management Services Office, $25 and $15; Althea H. Schwarzwalder, Michoud Operations, $25; and Darmer McBride, Jr., and Claude C. Turgeon, Manufacturing Engineering, shared a $20 award.

MORE

Receiving $15 awards were Jack L. Camper, Financial Management Office; John E. Hollander, Manufacturing Engineering; John C. Henderson and Eucle E. Breasseale, both of the Propulsion and Vehicle Engineering, and Paul A. Larsen, Aero-Astrodynamics Laboratory.

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April 30, 1965

IMMEDIATE RELEASE

Release No. 65-106

HUNTSVILLE, Ala. --Thirty secondary school counselors from 13 states will attend a two-day space orientation meeting Monday and Tuesday (May 3-4) at the NASA-Marshall Space Flight Center.

The session's program is designed to tell the educators more about the skills needed in the space field.

These counselors are graduate students in a National Defense Education Act Counselling and Guidance Institute being conducted by the University of Alabama. Institute students and faculty members visit government installations and industries to study ways of helping high school students prepare for future jobs.

Purpose of the institute is to develop counselors' skills in identifying students with outstanding aptitudes and abilities, suggesting appropriate courses of study and motivating and encouraging students to use their individual potential.

The counselors are from secondary schools in Alabama, Mississippi, Tennessee, California, Florida, Georgia, Maryland, South Carolina, Nebraska, New Mexico, Washington, Ohio, and Louisiana.

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May 3, 1965

IMMEDIATE RELEASE

Release No. 65-107

HUNTSVILLE, Ala. -- Ashburn and Gray Inc., Huntsville, Ala., has received a $1,656,864 contract to build seven miles of road for the NASA-Marshall Space Flight Center at Redstone Arsenal.

The Huntsville firm will build one road which will connect Martin and Rideout roads, the two main arteries on Redstone Arsenal. The road will route traffic around the eastern boundary of the Marshall Center complex.

The MSFC by-pass road will begin at Rideout Road about one mile north of the MSFC Headquarters. The road will be built southeast to a new east-west access road and then south to Martin Road.

Four interchanges will be located where the by-pass road touches Rideout Road, Morris Road extension, the east-west access road and Martin Road.

The east-west access road will extend from Neal Road near the U. S. Army Missile Command headquarters to the Marshall Center's west boundary. Among the short access roads included in this project will be one connecting Dodd Road and the MSFC by-pass.

Ashburn and Gray will also widen Rideout Road for 1.3 miles. This work will start south of the Headquarters Building and will extend to the new by-pass artery.

The work is expected to be completed in November of 1966.

Ashburn and Gray is presently building for MSFC some four miles of highway including a portion of Rideout Road that will eventually make that road six lanes. The firm holds a contract totaling more than $500,000 for work on the road leading to Redstone Arsenal's Gate 9.

These road projects, paid for by Marshall Center funds, are designed to tie in with an extension of Rideout Road being proposed by the Alabama highway department. Future plans call for extending Rideout Road around Huntsville to Memorial Parkway and to Highway 72 East.

The Mobile District of the Corps of Engineers awarded the new contract for the Marshall Center. Army Engineers wil supervise the construction. After completion of the work portions of the road net will be turned over to the U. S. Army Missile Support Command.

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May 3, 1965

IMMEDIATE RELEASE

Release No. 65-108

HUNTSVILLE, Ala. --The director of Argentina's Institute of Space and Aeronautical Research, Comodoro Oscar Valez, is visiting the NASA-Marshall Space Flight Center today and tomorrow for a look at the Saturn rocket development program.

Comodoro Valez has been attending classes in specialized aerospace sciences at the University of Michigan and is visiting Huntsville between semesters.

As a member of the Board of the Argentine National Commission for Aeronautical and Space Research, he has been instrumental in establishing and directing a high altitude rocket research and development program in Argentina.

His itinerary here includes a tour of various MSFC laboratories and a meeting with Dr. Wernher von Braun, director of the Marshall Center.

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May 4, 1965

IMMEDIATE RELEASE

Release No. 65-110

HUNTSVILLE, Ala. -- About 150 student members of the Institute of Electrical and Electronic Engineers will visit the NASA-Marshall Space Flight Center for a briefing and tour of facilities Friday.

The visitors, representing six colleges and universities, will be briefed by Ray Kline of the Executive Staff on Center organization.

The group will then tour facilities of the Manufacturing Engineering Laboratory and Test Laboratory before departing for lunch at the Redstone Officers Club. They will tour Army facilities during the afternoon.

Educational institutions represented by members of the group include Auburn University, the University of Tennessee, Mississippi State University, Christian Brothers College, Vanderbilt University and Tennessee Polytechnic Institute.

Abour three faculty members from each institution will accompany the student members.

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May 4, 1965

IMMEDIATE RELEASE

Release No. 65-111

HUNTSVILLE, Ala. -- "It is just good common sense to save through the purchase of U. S. Savings Bonds through payroll deductions," David H. Newby, associate deputy director, administrative of the NASA-Marshall Space Flight Center said yesterday.

In his keynote address to the chairmen and canvassers for the 1965 Saving Bond drive at the Marshall Center, Newby stressed the two-word slogan for this year, "Pratical Patriotism."

He said, "I consider Marshall Center personnel to be practical, patriotic and thinking people, and buying U. S. Savings Bonds through payroll deductions is the most practical way to save -- and it is the patriotic way to save.

"It is a one-two punch," he said. "When you buy bonds you help yourself and at the same time you help your government."

The kickoff ceremony began in Morris Auditorium at 9:30 a.m. with the National Anthem rendered by the Butler High School Band. The Rev. George F. Hart, pastor of St. Marks Lutheran Church, delivered the invocation.

MORE

Other guests introduced by drive chairman Bob Able at the ceremony included: Arthur Sanderson, acting director, MSFC Personnel Office; Gene Starnes, area manager of the Saving Bonds Division, U. S. Treasury Dept.; Al Adams, 1965 Huntsville Savings Bonds chairman; Col. D. A. Marcelle, chairman, savings bonds committee, Army elements at Redstone; and Mayor Glenn H. Hearn of Huntsville.

Newby urged the assembled canvassers to make every effort to acquaint all employees with the benefits of buying bonds through payroll deductions. "Give every employee a chance," he said. He expressed confidence that the Marshall Center's standing of only 54 per cent participation would be increased considerably during the drive.

Mrs. Adeline Leiberg of Pocatello, Idaho, "Mrs. U. S. Savings Bonds," will visit the Marshall Center on May 17 for personal appearances and talks with employees in connection with the drive.

# # #

I MSFC

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May 5, 1965

IMMEDIATE RELEASE

Release No. 65-113

HUNTSVILLE, Ala. --Two ranking officials of the Civil Aeronautics Board in Washington, D. C., will be briefed on space activities Thursday (May 6) during a visit to the NASA-Marshall Space Flight Center.

Robert T. Murphy, vice chairman of the Civil Aeronautics Board, and James L. Deegan, assistant to the vice chairman, will also tour Redstone Arsenal and fly over the new Huntsville-Madison County airport during their stay in North Alabama.

Murphy and Deegan will see MSFC test facilities and laboratories and will receive space program briefings from Marshall Center management personnel. The party will also visit the U. S. Army Missile Command's laser research facilities.

They are also scheduled to observe a late afternoon static firing of the Saturn V S-IC-T stage. An Army L-23 aircraft will take the visitors on an air-tour of the new Huntsville airport, Research Center and vicinity.

Expected to take part in the day long tour are Huntsville and Madison County government officials, members of the Huntsville Industrial Expansion Committee, representatives of the U. S. Army Missile Command and top Marshall Center personnel.

# # #

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May 7, 1965

IMMEDIATE RELEASE

Release No. 65-115

HUNTSVILLE, Ala. --Five two-man lecture teams representing the NASA-Marshall Space Flight Center will participate in teacher training workshops May 10-14 at five cities in Northeast Missouri.

The NASA men will lecture and give demonstrations on space sciences at workshops conducted by the Northeast Missouri State Teachers College. The training sessions are to familiarize about 1,000 elementary teachers with the national space program.

The evening workshops will be conducted simultaneously Monday through Friday in the cities of Kahoka, Mexico, St. Charles, Hannibal and Brookfield. The teams will rotate to all five workshops during the week.

Lecturers will be Dr. Preston Farish, chief of the Manned Flight Awareness Program; John H. Graham, Technology Utilization Office; George C. Bucher, Research Projects Laboratory; Ellery B. May, Jr., Aero-Astrodynamics Laboratory; and Richard B. Pratt, Public Affairs Office.

"Spacemobile" operators will make up the second half of the teams. They are Timothy O'Connel, Leesburg, Fla.; Fred Bell, Princeton, W. Va.; Leroy Weinbrenner, Kenosha, Wisc.; William Kral, Corona, N. Y.; and John Parks, Troy, Ala. These men normally travel throughout the country lecturing and giving space science demonstrations at schools.

MORE

Subjects to be discussed include astronaut training and safety; purposes of space exploration; how a rocket is launched and propelled through space; social and economic benefits of space technology; and the relationship between elementary school teachers and space age research.

# # # #

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May 13, 1965

IMMEDIATE RELEASE

Release No. 65-122

HUNTSVILLE, Ala. -- A pre-proposal conference for representatives of firms interested in bidding for a Saturn reliability program contract will be held May 18 at the NASA-Marshall Space Flight Center.

The meeting will be held at 9 a.m. in the Headquarters building on Rideout Road.

Industry was asked on May 7 to make proposals for providing technical support for the Marshall Center reliability program.

Major work will include review and periodic status reporting of the overall MSFC reliability program, development of a central reliability data and information center, development of MSFC reliability management techniques, development and extension of math modeling activities, conceptual and advanced studies and assistance in reliability audits of MSFC prime contractor reliability programs.

Work will be done at Huntsville, Ala.; the Los Angeles, Calif., area; and other areas.

About 50 firms have expressed interest in the contract.

Two representatives of each firm will be permitted to attend the pre-proposal conference. Interested companies should contact the MSFC Purchasing Office.

MORE

The proposals are due at the Marshall Center on June 18. The resulting contract will be for one year with an option to extend for two additional one year periods.

The MSFC Quality and Reliability Assurance Laboratory will administer the new contract. Marshall Center's present reliability contractor is ARINC Research, a subsidiary of Aeronautical Radio Inc., Washington, D. C.

# # #

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May 17, 1965

IMMEDIATE RELEASE

Release No. 65-123

HUNTSVILLE, Ala. -- The NASA-Marshall Space Flight Center has awarded a $1,600,000 contract to Aero Spacelines, Inc., of Van Nuys, Calif., for transporting Saturn upper stages and outsize rocket components.

Aero Spacelines has a modified Boeing Stratocruiser, called the Pregnant Guppy, which it has used for more than two years transporting stages, engines and large components.

The aircraft is large enough to carry the Saturn I second stage. Weighing 14,600 pounds, the stage is 18 feet in diameter and 40 feet long. Other large components flown in the aircraft include the 10-ton F-1 engine, Apollo command and service modules and vehicle instrument units.

Aero Spacelines newest contract runs through June, 1966. NASA first awarded the California firm a contract in 1963.

# # #

EX MSFC

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May 18, 1965

IMMEDIATE RELEASE

Release No. 65-126

HUNTSVILLE, Ala. -- Industry and National Aeronautics and Space Administration personnel here will have an opportunity at the Marshall Space Flight Center May 25-26 to become familiar with specialized methods of controlling and reducing costs.

The 1965 Cost Reduction and Management Improvement Seminar will begin at 8:30 a.m. Tuesday with final registration at Building 4200. The meeting will be opened officially at 9 a.m. by Col. W. S. Fellows, chief of the MSFC Cost Reduction and Value Engineering office.

Representatives of eleven major contractors whose cost reduction efforts are monitored by MSFC will participate in the symposium. Other NASA centers have been invited to attend.

Brooks C. Preacher, director, Office of Cost Reduction, NASA Headquarters, will be the featured speaker at the dinner and evening program May 25 at the Sheraton Motor Inn.

Presentations will be made by representatives of Douglas Aircraft Co., Boeing Co., Chrysler Corp., North American Aviation, Inc., Martin Co., Pratt and Whitney Division of United Aircraft, Lear-Siegler, Inc., Hayes International, General Electric, Mason-Rust, Ling-Temco-Vought, Brown Engineering Co., and International Business Machines, Inc.

MORE

Other speakers during the session will include Harry H. Gorman, deputy director, administrative, MSFC; Col. Edmund F. O'Connor, director, Industrial Operations, MSFC; and Dr. Jack Turner, head of the Department of Psychology, Auburn University.

# # #

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May 26, 1965

IMMEDIATE RELEASE

Release No. 65-135

HUNTSVILLE, Ala. --The second Saturn I booster (S-I-10) assembled at the NASA-Marshall Space Flight Center's Michoud Operations departed the New Orleans facility today enroute to its Cape Kennedy, Fla., launch site.

Shipment of the big booster followed by one day the successful launching of the first Michoud built Saturn I first stage. Both of the 1.5 million pound thrust boosters were produced by the Chrysler Corp. Space Division.

The S-I-10, booster for the tenth and last vehicle of the Saturn I series, is being shipped aboard the NASA barge "Promise." The barge is scheduled to arrive at NASA's John F. Kennedy Space Center May 31.

All nine Saturn I vehicles have made successful flights.

Second stage for the two-stage launch vehicle was delivered to Cape Kennedy May 10 aboard a large aircraft known as the "Pregnant Guppy." The S-IV second stage was flown from Douglas Aircraft Co.'s Sacramento, Calif., test site.

Other major vehicle elements are scheduled to arrive at the launch site in June. These include the instrument unit, Pegasus C payload, modified Apollo service module, Apollo command module and launch escape tower.

Topped by the second stage, the tenth Saturn I vehicle will launch in the next several months a third Pegasus meteoroid detection satellite to study the effects of such particles on future spacecraft.

The first two Pegasus satellites were successfully orbited by Saturn I space vehicles on Feb. 16 and May 25.

In addition to the two Saturn I boosters, Chrysler is also assemblying 12 first stages for the more powerful Saturn IB rocket to be used in orbiting manned Apollo spacecraft preparatory to manned space flights to the moon.

# # # #

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May 27, 1965

IMMEDIATE RELEASE

Release No. 65-137

HUNTSVILLE, Ala. -- The National Aeronautics and Space Administration will soon select two firms to develop a drill for probing some 100 feet below the moon's surface.

Astronauts on post-Apollo lunar missions would use the drill as a geological research tool to bore holes for many geophysical measurements.

The NASA-Marshall Space Flight Center -- the center directing the program for the NASA Office of Manned Space Flight -- recently requested proposals for the work. Industry proposals are due at the Center on June 10.

The two firms selected by NASA for parallel one-year feasibility study contracts will manufacture engineering models of the lunar drill. The equipment will be a suitable facsimile of the final version and will be tested under simulated moon surface conditions.

John Bensko, of the MSFC Research Projects Laboratory, is heading the lunar drill project.

Bensko said the general requirements for the drill system will be a capability of drilling and taking cores beyond the 100-foot level. The unit will weigh less than 200 pounds.

MORE

The Research Projects Laboratory first studied the lunar drill concept in 1958. Plans for a lunar drill were described by Bensko in 1960 at a meeting of the American Geophysical Union and by Charles A. Lundquist and Bensko at the 7th Aero-Space Instrumentation Symposium in 1961.

Bensko pointed out that the proposed drill system, when developed, tested and perfected for astronaut use, will enhance the geological capability of astronauts on the lunar surface. Undisturbed cores taken by the astronauts may give samples of ancient moon surfaces that have been buried under debris. The history of those surfaces, which may reflect in part the history of the solar system, would be returned to earth for careful laboratory examination.

The drill may also be used to check the extent of any unusual rock material and provide holes for explosives used in seismic research. The device will also provide receptacles for probes left to gauge changes occuring on the moon over long periods of time. In addition, the geologic tool will provide a test to the speculation concerning the presence of ice in the moon's subsurface.

Bensko said, "Part of the uniqueness of the drill system for use on the moon arises from the necessity that it operate under vacuum conditions without any commonly used fluid or air to help remove drilled material or cool the bit. Since the astronaut is limited in the amount of time and actual work he can do with any tool on the moon," he said, "the device must be capable of sensing difficulties and rectifying them without too much attention."

Bensko said, "In addition to its use on the moon the drill will provide a major step in research which may be used in making a lighter, stronger and more automatic drill for earth exploration."

An evaluation team made up of scientists and engineers from other NASA centers, Jet Propulsion Laboratory, the Bureau of Mines and the Corps of Engineers will select the two firms to do the drill development work.

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E

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June 15, 1965

IMMEDIATE RELEASE

Release No. 65-149

HUNTSVILLE, Ala. -- Fourteen engineering faculty members from universities across the country are participating in a faculty fellowship program this summer at the NASA-Marshall Space Flight Center.

The program is sponsored by the Marshall Center, Auburn University and the University of Alabama. The Marshall Center program is one of six jointly sponsored by NASA and the American Society for Engineering Education.

The summer fellowship program -- which started this week and runs through August 20 -- includes research, tours and participation in 19 seminars in space science and engineering. The participants will also pursue a research project with Marshall Center employees.

Participants are E. G. Baker and C. J. Bell Jr., Mississippi State University; D. L. Bernreuter and T. A. Manning, Louisiana State University; Dr. J. W. Bursik, Rensselaer Polytechnic Institute; Dr. R. L. Cummins, Oklahoma State University; R. C. Duncan Jr., University of Kentucky; E. A. Grant Jr., Tuskegee Institute;

Dr. L. J. Hirth, Auburn University; Dr. A. H. Meldrum, University of North Dakota; Dr. H. F. Mullikin, Montana State College; D. C. Raney, University of Alabama; Dr. W. H. Rowan Jr., Vanderbilt University; and Dr. R. J. Schoenhals, Purdue University.

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FOR RELEASE:

1 pm CST, July 2, 1965

Release No. 65-169

HUNTSVILLE, Ala. -- The National Aeronautics and Space Administration has awarded a $8,150,833 contract modification to General Electric Co. for supporting the Computation Laboratory at the NASA-Marshall Space Flight Center here.

General Electric's contract for supporting the laboratory now totals $14,995,668. This is the first one-year extension of the contract awarded last year. The original contract contains an option permitting two one-year extensions.

The work is being performed by the Huntsville Operations of the General Electric Co.'s Computer Division, Phoenix, Arizona.

General Electric personnel are performing engineering services for scientific computations, analog simulation and data reduction.

# # #

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July 7, 1965

IMMEDIATE RELEASE

Release No. 65-174

HUNTSVILLE, Ala. --NASA-Marshall Space Flight Center employees will begin moving this weekend into new offices in the third building of the MSFC headquarters complex on Rideout Road.

Industrial Operations personnel will be the first to move. They are scheduled to move July 10-11 to the fourth floor of the new six-story structure.

The Personnel Office is scheduled to move to the second, first and basement floors on the weekend of July 17. Many of these employees are leaving offices in the Clinton Street Building in downtown Huntsville. There has been no assignment of space being vacated in the downtown office building.

Offices scheduled to move later into the new building include the Advanced Systems Office and a new Technical Systems Office of Research and Development Operations. Advanced Systems Office, formerly Future Projects Office, will move to the fifth floor and the R&D organization will take about half of the office space on the sixth floor.

Specific assignment of the remaining space on the third and sixth floors has not been made.

The building will house some 550 Marshall Center employees.

MORE

Pearce and Gresham, Decatur, Ala., built the structure for the Marshall Center under a $2,294,308 contract. The firm also constructed a nearby six-story office building. MSFC's nine-story central laboratory and office building is the largest building in the complex.

Architecture of the new structure is identical to the other two buildings. The structure, which is 218 by 70 feet, has outside walls of gray steel and glass. Its first floor cafeteria opened this week.

The building was designed by Wyatt C. Hedrick, Fort Worth, Texas, and the site adapted by Hudgens, Thompson and Ball of Oklahoma City, Okla., under the supervision of the Facilities and Design Office, MSFC.

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MSFC E W

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July 9, 1965

IMMEDIATE RELEASE

Release No. 65-178

HUNTSVILLE, Ala. --A new F-1 engine test stand was used for the first time yesterday at the NASA-Marshall Space Flight Center.

The stand is located in the Center's West Test Area. It is controlled from the same blockhouse which controls firings on the large Saturn V booster stand.

Yesterday's firing was for 10 seconds, as planned. Dan Driscoll of the Test Laboratory said he was "quite pleased" with the results. This initial firing of the 1.5 million pound thrust engine on that stand was primarily for the purpose of checking out the new facility, he noted.

On another test stand, the Chrysler Corp. late yesterday fired the second Saturn IB booster, which was manufactured by Chrysler at MSFC's Michoud Assembly Facility. The test was terminated automatically after three seconds because of a faulty signal from an engine pressure switch. The test, to run thirty seconds, is rescheduled for late today.

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July 14, 1965

IMMEDIATE RELEASE

Release No. 65-183

HUNTSVILLE, Ala. --A ground firing of the S-II "battleship" stage was conducted last night for a duration of 25 seconds, the NASA-Marshall Space Flight Center said today.

The firing, longest to date in the S-II program, was conducted at the Santa Susana (Calif.) test site of North American Aviation. North American's Space and Information Systems Division is developing the S-II under direction of the Marshall Center.

This firing was one of a series leading to full flight duration runs of nearly 400 seconds. The next test, expected within a week, is planned for about two minutes.

The S-II - 82 feet long and 33 feet in diameter -- is powered by five J-2 hydrogen/oxygen engines made for NASA by NAA's Rocketdyne Division. The unit, second stage of the Saturn V moon rocket, will develop a million pounds thrust at altitude.

These captive firings are being conducted using a "battleship" stage made of heavy steel instead of the aluminum alloy that of which flight stages are made.

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July 21, 1965

IMMEDIATE RELEASE

Release No. 65-186

HUNTSVILLE, Ala. -- The NASA-Marshall Space Flight Center has issued 11 new contracts and modified one other to provide for further studies and component development in connection with Apollo Extension Systems (AES).

The latest awards follow recent extensions of two contracts to further define astronaut mobility on the moon's surface by means of a local scientific survey module (LSSM), award of two new contracts for mobility test articles (MTA) of such a vehicle and award of a follow-on contract to design a manned flying system (MFS). (See MSFC Release 65-173)

Two of the new contracts are for development research on an engine for the MFS. Bell Aerosystems, MFS contractor, received one contract in the amount of $58,570. The other, for $106,413, went to TRW Systems Group.

The Westinghouse Corp. was awarded a $144,912 modification to an existing contract for development of an altimeter for the MFS.

Study contract awards funded by the NASA Office of Space Sciences and Applications include: "Lunar Terrain Analysis," Hayes International, Inc., $39,182; "Surface and Subsurface Probes," Texaco, $100,435; "Surface and Subsurface Probes," Electro Mechanical Research, Inc., $157,570; "Emplaced Scientific Station," Westinghouse, $162,594; and "Environmental Effects on AES Instruments," Hughes Aircraft, $180,000.

Parallel Studies

MORE

Four other study contract awards funded by the NASA Office of Manned Space Flight are: "In Situ Lunar Sample Analysis," Goddard Space Flight Center, $200,000; "Optical System for AES," Kollsman Instruments, $144,000; "Radio Astronomy and Plasma Studies," North American Aviation, Inc., $98,226; and "Scientific Mission Studies," Bendix, $148,995.

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July 30, 1965

IMMEDIATE RELEASE

Release No. 65-193

HUNTSVILLE, Ala. --A new office to handle launch vehicle technical systems problems for its two major organizations has been established by the NASA-Marshall Space Flight Center.

The office will be known as the Technical Systems Office.

Dr. J. C. McCall, deputy director of the Research and Development Operations, will serve as acting director of this office until Oct. 1. At that time L. G. Richard, assistant director of the Astrionics Laboratory, will leave his present post and become director of the Technical Systems Office.

The office, which was created June 15, is on the staff level in Research and Development Operations. Creation of the Technical Systems Office resulted from a recent study into the manner in which Marshall organizes its efforts to handle technical systems problems, at the launch vehicle level, arising in the currently approved MSFC programs.

Dr. Wernher von Braun, MSFC director, said in a memorandum creating the office that "the study has clearly shown the need for a more centralized management of these efforts which will result in bringing the engineers who work on these technical systems in Research and Development Operations and Industrial Operations into a closer and more responsive, daily working relationship.

MORE

A Technical Systems Council has been formed to be a functional part of the Technical Systems Office. It is composed of key engineers from system engineering areas of MSFC who carry the title of "Senior Systems Engineer" and who officially speak for their organizations in technical systems matters.

The Technical Systems Office will be housed on the sixth floor of Building 4202 on Rideout Road.

The directive establishing the new R&DO Office also changed the name of the Saturn-Apollo Systems Office. This organization has been renamed the Technical Staff Office for Research and Development Operations.

# # # #

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August 4, 1965

IMMEDIATE RELEASE

Release No. 65-196

HUNTSVILLE, Ala. --Some 300 representatives of industry, the National Aeronautics and Space Administration and other agencies are attending a conference on design of leak-tight fluid connectors today and tomorrow at the NASA-Marshall Space Flight Center.

The conference, sponsored by the Marshall Center and the Society of Automotive Engineers, was planned to promote the direct exchange of technical information concerning separable, semipermanent and permanent fluid connectors.

C. C. Wood of the MSFC Propulsion and Vehicle Engineering Laboratory, conference chairman, said emphasis will be placed on design or fundamentals leading to development of leak-tight connectors for space vehicle propulsion systems.

The conference began at 9 a. m. with a welcome address by Hermann K. Weidner, Director of Research and Development Operations at the Marshall Center.

During today's session, Egon Kafka of NASA Headquarters was chairman during the morning discussions, and Kenneth Bragg of Parker Aircraft chaired the afternoon session.

MORE

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FOR RELEASE

6 p.m. CST, Aug. 4, 1965

Release No. 65-199

HUNTSVILLE, Ala. --Personnel of the Manned Spacecraft Center, Houston, Texas, will be augmented to meet the increasing tempo of Gemini and Apollo manned space flight operations.

In the first of these actions, approximately 200 personnel will be transferred from the Marshall Space Flight Center, Huntsville, Ala., to the Manned Spacecraft Center over the next ten months.

Dr. George E. Mueller, Associate Administrator for Manned Space Flight said the completion of the first phase of the Saturn program with the successful launching of SA-10 had made it possible for the Marshall Space Flight Center to make personnel available for Saturn/Apollo operational activities at the Manned Spacecraft Center.

A total number of personnel to be provided from other NASA activities has not yet been determined.

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August 25, 1965

IMMEDIATE RELEASE

Release No. 65-211

NEW ORLEANS, La. --Representatives of 17 firms interested in providing computer services at the National Aeronautics and Space Administration's Michoud Assembly Facility attended a pre-proposal conference yesterday at the New Orleans installation.

Michoud, a division of the NASA-Marshall Space Flight Center, Huntsville, Ala., is a production site for first stages of the Saturn IB and Saturn V launch vehicles to be used in the Apollo manned lunar landing program.

The computer services contract will include operation or maintenance of some 20 digital and analog computers, a data transmission system, a data reduction system and related electronic equipment. These services will support both the Michoud Assembly Facility and the MSFC's Mississippi Test Facility in Hancock County, Miss.

Work under the contract will be performed at the main Michoud plant in New Orleans and its Computation Office in nearby Slidell, La. It will cover a one-year period and will have three one-year renewal options.

Proposals are due September 17. The present computer services contract with Telecomputing Services, Inc., Panorama City, Calif., expires Jan. 7, 1966.

MORE

Firms represented at the one-day conference were: Benson-Lehner Corp., CEIR, Inc.; Computer Services Corp.; Computer Usage Co., Inc.; Federal Electric Corp.; General Electric Co.; International Telephone and Telegraph Co., Lear-Siegler, Inc.; Ling-Temco-Vought; Minneapolis-Honeywell; M&T Co.; Radio Corporation of America; Service Bureau Corp.; Telecomputing Services, Inc.; Dow Chemical Co.; Video Corp.; and Wolf Research and Development Corp.

Other firms interested in this procurement may contact the Michoud Contracts Office for further information.

# # # #

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MSFC

September 21, 1965

IMMEDIATE RELEASE

Release No. 65-232

HUNTSVILLE, Ala. -- Four new offices have been formed at the Marshall Space Flight Center, National Aeronautics and Space Administration, in a management move to centralize future projects and advanced systems operations and to streamline MSFC's effort in connection with manned and unmanned launch vehicles.

James E. Webb, NASA Administrator, signed a new organization chart adding three new offices to the Research and Development Operations.

They are the Technical Systems Office, Technical Staff Office and the Operations Management Office.

At the same time, he approved a new Mission Operations Office under the Industrial Operations. This office will have an element at the Manned Spacecraft Center in Houston, Texas.

At least two offices, and many personnel assigned to them, were merged into the new organizations. Offices absorbed were the Saturn/Apollo Systems Office and the Advanced Systems Concepts office.

The new Technical Systems Office is headed by Ludie Richard, who has been assigned to the Astrionics Laboratory. His office will concentrate and combine the individual systems engineering efforts of Research and Development Laboratories and participating industrial contractors into a centralized vehicle systems engineering capability to support assigned industrial programs.

MORE

Konrad K. Dannenberg was named to head the new Technical Staff Office. His office will conduct technical reviews and analysis of research and development operations which pertain to several laboratories and involve a number of engineering and scientific disciplines. The office also becomes the focal point for initiation, development and integration of Center activities in support of MSFC participation in the NASA Experiments Review Board.

Dannenberg previously headed the Saturn/Apollo Systems Office, which has been abolished.

The third office in R&D Operations, the Operations Management Office, will be headed by Scott Fellows. He is to coordinate and integrate all facets of R&D Operations resources management, including funding, manpower, facilities and materials. In addition, certain management control and planning will be developed and coordinated there.

The new Mission Operations Office, Industrial Operations, will be headed by Dr. Fridtjof A. Speer. It will have an element at the Manned Spacecraft Center in Houston. Together, they will plan, coordinate and direct activities involved in accomplishing MSFC's mission operations role pertaining to manned and unmanned launch vehicles during space flight missions, flight tests and similar operations.

The Advanced Systems Office, announced earlier, was also effective on the new chart. It is headed by Frank Williams, previously assistant to Dr. Wernher von Braun.

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September 23, 1965

IMMEDIATE RELEASE

Release No. 65-237

MSFC:

NEW ORLEANS, La. --Two former construction contractors at the National Aeronautics and Space Administration's Michoud Assembly Facility have been selected to repair buildings damaged at the Saturn booster production site by hurri cane Betsy.

Both the Tri-State Roofing Co., Knoxville, Tenn., and the J. A. Jones Construction Co., Charlotte, N. C., began emergency repairs at the facility September 13.

Tri-State, which reroofed Michoud's 43-acre manufacturing building in 1962, will repair all roofing damaged at the New Orleans installation.

All other repairs, including structural, electrical, and glass damage, will be made by J. A. Jones. Jones last year completed construction of Michoud's two-story engineering and office building.

Damage to Michoud facilities, though considered extensive, is not expected to seriously affect the production schedules of the giant Saturn IB and Saturn V first stages to be used in the Apollo manned lunar landing program.

# # #

Public Affairs Office
George C. Marshall Space Flight Center
National Aeronautics and Space Administration
Huntsville, Alabama

Phone: 876-1959, 876-1102
(Don Lakey - residence 883-0976)

For Release:

Sunday, Sept. 26, 1965

Release No. 65-238

HUNTSVILLE, Ala. --Calendars on the desks of 64 rocket experts at the NASA-Marshall Space Flight Center show Nov 4-6 already committed.

That date promises to be the largest celebration ever of the Fort Bliss, Texas "Oldtimers"--most of them a group of former German rocket scientists and engineers who will celebrate their 20th anniversary in the United States. (The first group of seven, led by Dr. von Braun, arrived in the U. S. Sept. 20, 1945.)

Often called the "von Braun team," the group again decided to hold the biennial meeting in Huntsville where Dr. Wernher von Braun today directs the Marshall Center and has 63 of the original members in his organization. All are now U. S. citizens. They are developing giant space rockets for the United States. The latest one -- Saturn V -- is designed to take three men to the Moon. Their first 10 Saturn space rockets made successful flights.

Of the 118 who signed contracts with the U. S. War Department Sept. 15, 1945, eight are now deceased. Fifteen are living in Germany or other European countries and 31 are located with industrial or governmental

MORE

organizations in the United States. Most of them remain in Huntsville where they have now been residing longer than 80 per cent of those in the city today.

Their original contract was a simple mimeographed sheet with two carbon copies and signed by an Army captain. The original went to Headquarters, U.S. Forces, Europe; the second one went to the employee and the final copy, ironically, went to the "Discontinued Projects Branch," War Department, Omaha, Nebraska.

After this, the group was sent by the United States to Fort Bliss, Texas, and the families remained in Germany. At Fort Bliss, they worked on an assortment of V-2 rockets and related equipment that came with them from Germany. They started launching rockets a little later at nearby White Sands Missile Range in New Mexico.

They've been making rockets ever since. One put the first U.S. satellite into orbit on Jan. 31, 1958, and it's still up.

The group called a special meeting last January to celebrate that launch. At the same time, they honored a special guest, retired Army Maj. Gen. John B. Medaris, who commanded the Army Ballistic Missile Agency at the time the satellite was launched.

This year, they plan an official observance of the 70th birthday of Dr. Walter Dornberger, who commanded the Peenemuende Rocket Center on the Baltic Sea as a general. He now is an industrialist living in New York.

Others who will attend the celebration include a number of native Americans who started working with the group in Texas.

# # # #

Public Affairs Office
George C. Marshall Space Flight Center
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October 27, 1965

IMMEDIATE RELEASE

Release No. 65-267

HUNTSVILLE, Ala. --A Saturn IB launch vehicle first stage (S-IB-3) was captive fired for its full flight duration late yesterday at the NASA-Marshall Space Flight Center here.

The successful test, lasting nearly 2-1/2 minutes, was conducted by the Chrysler Corp., MSFC's prime contractor on the S-IB program.

The S-IB-3, booster stage for the third Saturn IB flight vehicle, was built by Chrysler at NASA's Michoud Assembly Facility in New Orleans. It will be returned to MAF for post-firing checks and refurbishing, departing the Marshall Center November 4 and arriving New Orleans November 9.

The Saturn IB first stage is powered by eight Rocketdyne H-1 engines, developing a total of 1.6 million pounds thrust.

# # #

Public Affairs Office
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Phone: 876-1102, 876-1959
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October 29, 1965

IMMEDIATE RELEASE

Release No. 65-270

HUNTSVILLE, Ala. -- The NASA-Marshall Space Flight Center's newest hangar-type building is being used as an assembly area for the Saturn V flight booster.

Sullivan, Long and Hagerty, Birmingham, Ala., built the three-bay structure at a cost of approximately $3 million.

The Marshall Center is presently assembling its second Saturn V flight booster here. Saturn V launch vehicles will one day loft astronauts into space.

Almost 100 feet high, the building is 200 feet long and 312 feet wide. Two high-bay areas, both 125 feet wide, are separated by a middle bay containing offices, another work area and a storage loft.

Two electrically-operated hangar-type doors, each 90 feet wide and 70 feet high, are in one end of the building. There are some 66,400 square feet of floor area in the structure.

The building, which has blue metal siding, is in an area west of the Marshall Center's Manufacturing Engineering Laboratory.

# # #

Public Affairs Office
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November 2, 1965

IMMEDIATE RELEASE

Release No. 65-273

HUNTSVILLE, Ala. -- Thirty-six employees of the NASA-Marshall Space Flight Center are scheduled to receive a variety of awards, including a Presidential Citation and six invention awards Friday morning (Nov. 5) in front of MSFC headquarters.

These presentations will be a part of local ceremonies to observe the seventh anniversary of the National Aeronautics and Space Administration. The meeting will start at 11 a.m. In case of bad weather, it will be held November 9 at the same time.

The highlights of the event will be an address by Dr. Wernher von Braun, director, and the presentation of invention awards by William Rieke, NASA deputy associate administrator for industry affairs.

Activities will start with invocation by the Rev. Paul Clem, pastor of Huntsville's First Methodist Church. Harry H. Gorman, deputy director, Administrative, will make the opening remarks.

Visitors also will include Mayor Glenn H. Hearn of Huntsville and James R. Record, chairman of the Board of Madison County commissioners.

After Dr. von Braun's talk, awards will be presented.

MORE

Albin E. Wittmann of the Quality and Reliability Assurance Laboratory, will receive a $1,200 award for inventing a printed circuit boards technique.

James R. Scoggins of the Aero-Astrodynamics Laboratory will receive $1,000 for inventing a spherical balloon wind sensor.

Other employees who will get invention awards are Dolphus H. Black of the Propulsion and Vehicle Engineering Laboratory; William G. Franklin and Neil C. Martin, co-inventors, of the Manufacturing Engineering Laboratory and Vaughan H. Yost, also of the Manufacturing Engineering Laboratory.

Emblems denoting 30 years service will be presented to Lynn Jonakin and Ben F. Morrow, Technical Services Office, Willie S. Wilson, Jr., Astrionics Laboratory; Charles R. Byerline, Financial Management Office; Harold K. Katz, Management Services Office; and David M. Price, Engine Program Office.

Ten members of the original von Braun team who started government service at Fort Bliss, Texas, will receive 20 year pins. They are Konrad K. Dannenberg, Technical Staff; Dr. Ernst D. Geissler, Aero-Astrodynamics Laboratory; Dieter Grau, Quality and Reliability Assurance Laboratory; Dr. Helmut Hoelzer, Computation Laboratory; Karl L. Heimburg, Test Laboratory; Dr. Hans Hueter and Dr. William A. Mrazek, both of Industrial Operations; Werner R. Kuers, Manufacturing Engineering Laboratory; Erich W. Neubert and Eberhard F. M. Rees, both of the Office of the Director.

Employees who will receive sustained superior performance awards are William V. Castleberry of the Quality and Reliability Assurance Laboratory; Hans Goldstein, Test Laboratory; Onice M. Hardage, Ronald G. Toelle, and Carl T. Walker, all of Aero-Astrodynamics Laboratory; Adonna Mitchell, Contracts Office; Richard W. Schock, Propulsion and Vehicle Engineering Laboratory and Paul H. Schuerer, Manufacturing Engineering Laboratory.

A special service award will go to Kenneth G. Baird of the Saturn V Program Office for his work as a key team member of a group of employees who conducted a review of manpower and projected costs on the S-IC stage.

Three employees will receive suggestions awards. They are Walter D. Caldwell of the Propulsion and Vehicle Engineering Laboratory; Oma B. White of Management Services Office; and John E. Hollander of the Manufacturing Engineering Laboratory.

Another employee, Robert A. Bush of the Facilities Projects Office, is to receive the Presidential citation for outstanding contributions to economy in connection with MSFC's construction program.

V. C. Sorensen, chief of the Management Services Office, will receive the Director's plaque on behalf of his employees, who submitted the largest number of suggestions during the past quarter.

# # #

Public Affairs Office
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November 4, 1965

IMMEDIATE RELEASE

Release No. 65-278

MSFC

GAINESVILLE, Miss. --Six key appointments at the National Aeronautics and Space Administration's Mississippi Test Facility were announced today by Jackson M. Balch, MTF manager.

Named were Henry F. Auter as deputy manager and chief of the Projects Control Office; Lt. Col. Frederic A. Frech, assistant manager for construction and installation; Waldo H. Dearing, chief of the Management Support Office; Myron L. Myers and Robert A. Bush, project managers for S-IC and S-II operations, respectively; and Myrl E. Sanders, project manager for support activities.

Auter, before coming to Mississippi, was with the Test Laboratory of the NASA-Marshall Space Flight Center, Huntsville, Ala., MTF's parent organization. He has been one of the key personnel from Marshall concerned with the rocket testing site since its very beginning.

Frech, the new MTF assistant manager, has been area engineer for the Army Corps of Engineers at the Air Force's Arnold Engineering Development Center in Tullahoma, Tenn., since September 1964.

MORE

Dearing, MTF's new chief of the Management Support Office, formerly was executive assistant to the Depot Commander at the Sioux Army Depot, where he was the top-ranking civilian official.

Myers, comes to MTF as S-IC project manager from Huntsville where he was S-IC facilities manager in the Saturn V program.

Bush, as the S-II project manager, also comes to Mississippi from Huntsville where he was working as the S-II facilities manager. He was involved there in erecting S-II facilities throughout the country.

Sanders, formerly with the Resources Management Office at Marshall Space Flight Center, has been one of the key figures in the development of the Mississippi facility.

MTF now in its final phase of development, will be the static testing site for engines and stages of NASA's large space vehicles.

# # #

Public Affairs Office
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November 10, 1965

IMMEDIATE RELEASE

Release No. 65-280

MSFC

HUNTSVILLE, Ala. --The National Aeronautics and Space Administration selected Telecomputing Services, Inc., Panorama City, Calif., and Ling-Temco-Vought's Range Systems Division of Dallas, Texas, today for competitive negotiations of a contract to provide computer support service for the Michoud Assembly Facility, New Orleans.

A cost-plus-award-fee contract will be negotiated for a one-year period with provisions for three consecutive one-year renewal periods. Cost for the first year is estimated to exceed $1.5 million.

The services will be performed at the main Michoud plant and at the Computation Office at Slidell, La. They include operation and maintenance of some 20 digital and analog computers, a data transmission system, a data reduction system and related electronic equipment.

These services also will support the Mississippi Test Facility in Hancock County, Miss. The work will require about 200 personnel.

MORE

Michoud, a division of the NASA-Marshall Space Flight Center, Huntsville, Ala., is a production site for first stages of the Saturn IB and Saturn V launch vehicles to be used for the Apollo manned lunar landing program. The Mississippi Test Facility, also a division of the Marshall Center, is the site for ground testing first and second stages of the Saturn V vehicle.

# # #

Public Affairs Office
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November 16, 1965

IMMEDIATE RELEASE

Release No. 65-283

HUNTSVILLE, Ala. -- A Career Opportunities Office has been established in the Manpower Utilization and Administration Office of the NASA-Marshall Space Flight Center to provide a wide range of assistance to employees -- including retraining as Marshall Center mission changes require new skills.

Keith Wible, chief of the Manpower Utilization and Administration Office, said the office will be headed by Charles E. Hester, a veteran personnel management man here.

The new program is designed to provide MSFC with a well balanced work force and, at the same time, provide all employees with the opportunity for continuous employment and career development. Wible said it will provide immediate assistance to employees who had skills that were invaluable in the past but skills that may be less meaningful in future programs here. Others may also participate in other aspects of the career opportunities, including reassignment requests.

Wible said management officials here have been asked to identify functions in their organizations that are least critical to future missions of the Center and also provide job titles and grade classifications of individuals performing these functions.

MORE

He said the Career Opportunities Office will then provide assistance such as retraining, reassignment, or even assist employees in securing other employment at MSFC or other NASA Centers or agencies.

Wible said information on these employees will be kept current and they will be given priority when vacancies occur in skills for which they are qualified.

Operating officials who were asked to identify least critical jobs were also asked, at the same time, to supply their recruitment requirements for the remainder of the fiscal year. This is being done, Wible said, in anticipation of the lessening of in-house efforts on the Saturn programs and the beginning of MSFC's part of the Apollo Applications program.

Wible said the program is already being implemented not only for employees, but also to keep pace with the dynamic changes in Marshall's role in the space program.

He said heads of each major organization will provide skill and mission requirements to the new office quarterly and requirements for new skills will be coordinated closely with MSFC's Training Branch.

# # #

MSFC

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November 16, 1965

IMMEDIATE RELEASE

Release No. 65-284

HUNTSVILLE, Ala. -- Five hundred NASA-Marshall Space Flight Center employees will receive a total of $50,000 next month in special awards ceremonies to grant recognition to individuals who played significant roles in certain important MSFC programs during the past year.

The Special Superior Achievement Awards will cite persons nominated by supervisors for participation in the completion of the Saturn I program; the Pegasus meteoroid detection satellite project; the S-IC-T assembly and first phase static test; the roll out of S-IC-1, the first flight booster of the Saturn V; and the S-IVB battleship static test, according to Keith Wible, chief, Manpower Utilization and Administration Office.

Wible said the awards will be for $50, $100, and $200. He said about 350 employees of Research and Development Operations will receive $35,000; approximately 100 in Industrial Operations will receive $10,000, about 25 staff employees will receive a total of $2,500 and as many as 25 employees may receive $2,500 from the MSFC Director.

Wible said nominations from Laboratory and Office chiefs are now being studied by the Incentive Awards Committee.

MORE

Dr. Wernher von Braun, director, proposed the special Superior Achievement Awards as a method of citing individuals for specific accomplishments in connection with Marshall programs.

Wible said the awards will be administered as a part of the present Incentive Awards program.

# # #

Public Affairs Office
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December 14, 1965

IMMEDIATE RELEASE

Release No. 65-303

Also Released in New Orleans, La.

NEW ORLEANS, La. --The National Aeronautics and Space Administration has exercised a one-year renewal option with the firm of Mason-Rust for continued provision of support services at NASA's Michoud Assembly Facility.

The new $13,121,252 extension of Mason-Rust basic cost-plus-award-fee contract was awarded by Michoud's parent organization, the Marshall Space Flight Center, Huntsville, Ala.

This extension, to become effective Jan. 1, 1966, will continue in force through Dec. 31, 1966.

Since its initial selection by NASA in December, 1961, Mason-Rust has furnished common services to both government and contractor elements operating at the main Michoud complex in New Orleans and its Computation Office in nearby Slidell, La.

Michoud is the production site of the first stages of the Saturn IB and Saturn V space vehicles, designed for use on NASA's Apollo manned lunar landing program.

MORE

Support services under this contract include transportation and Michoud port operations, security and safety, fire protection, photography, medical, food, supply, messenger and mail, communications, custodial, plant maintenance and repair, engineering, reproduction and documentation.

Mason-Rust, now employing 945 persons, is a joint venture of the Rust Engineering Co., Pittsburgh, Pa., and the Mason and Hangar-Silas Mason Co., Lexington, Ky.

# # # #

Public Affairs Office
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December 17, 1965

IMMEDIATE RELEASE

Release No. 65-305

HUNTSVILLE, Ala. -- A Saturn I rocket, 160 feet tall, has been erected as a public display at the NASA-Marshall Space Flight Center.

It is the same kind that racked up 10 consecutive successful flights and is a predecessor to the huge rockets being developed for trips to the Moon.

This one is here because it was never intended to fly. Yet, it stands as a majestic monument to each of those 10 that did. They produced up to 32 million horsepower at maximum thrust and they blazed a pace-setting trail into space.

Several placed record-breaking loads into space. Three launched large Pegasus satellites.

The rocket here is a dynamic test vehicle -- a mechanical "guinea pig" -- that was subjected to many ground tests to insure the success of the nearly identical flight models rolling through the assembly area.

In early 1961, it was placed into a stand and subjected to tests of bending characteristics, temperature effects caused by super cold liquid oxygen and nitrogen when held for varying lengths of time, and engineers and technicians programmed simulated flight vibrations on the two stages of the rocket.

Prospective launch crews were checked out on it, booster fueling techniques were developed and it was used to study assembly methods.

MORE

During these ground tests, a number of conditions developed that prompted modifications on flight versions.

The booster engines hanging beneath the display rocket played similar roles. They were static fired in various rocket boosters to determine potential trouble spots.

The Saturn I appears in a display of missiles and space vehicles in front of MSFC's Space Orientation Center.

Meanwhile, the Marshall Space Flight Center is far along in the second phase of the Saturn rocket program. The first Saturn IB, an advanced and more powerful version of the Saturn I, stands on the pad at the NASA-Kennedy Space Center.

And the first flight booster of the giant Saturn V rocket lies in a checkout area. The booster is nearly as long as a complete Saturn I and each engine is as powerful as all eight Saturn I engines combined.

Yet everyone at the Marshall Center agrees that the dummy standing in the rocket display here is a real "hero."

# # #

MSFC

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FOR RELEASE:

1 p.m. CST
December 17, 1965

Release No. 65-307

HUNTSVILLE, Ala. -- Dr. Wernher von Braun, director of the NASA-Marshall Space Flight Center, today named Dr. Jerry C. McCall of MSFC to organize and head up the Experiments and Applications Office of the center. The office will manage the MSFC portion of Apollo Applications.

The assignment, effective Jan. 1, 1966, was made today following the announcement in Washington of the Marshall Center's role in the new NASA effort.

For the near future, Dr. McCall's Experiments and Applications Office work will be a concurrent duty. Dr. von Braun simultaneously appointed Stan Reinartz to work under Dr. McCall on a fulltime basis to direct the forthcoming mission integration contract effort.

Dr. McCall will also continue to serve as deputy director of the MSFC Research and Development Operations. He and Reinartz, while in these new capacities, "will take the necessary steps to create a new program office in possible Industrial Operations at the earliest time," Dr. von Braun said.

When the new office is formally created, Dr. McCall will serve as manager while continuing in his present R&DO position. When the initial mission integration contract effort is completed, he will be the fulltime manager of the new office and Reinartz will be his deputy.

# # #

Public Affairs Office
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Phone: 876-1102, 876-1959
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December 21, 1965

IMMEDIATE RELEASE

Release No. 65-310

Also Released in New Orleans, La.

NEW ORLEANS, La. --The National Aeronautics and Space Administration has selected the Range Systems Division of Ling-Temco-Vought, Inc., Dallas, Texas, for final negotiations to provide computer support services for the Michoud Assembly Facility, New Orleans, La.

A cost-plus-award-fee contract will be negotiated for a one-year period with provisions for three consecutive one-year renewals. Cost for the first year is estimated to exceed $1.5 million. The services will be performed at the main Michoud plant and at its Computation Office in Slidell, La. They include operation and maintenance of some 20 digital and analog computers, a data transmission system, a data reduction system and related electronic equipment.

These services also will support the Mississippi Test Facility in Hancock County, Miss. The work will require approximately 200 personnel.

Michoud, a facility of the Marshall Space Flight Center, Huntsville, Ala., is a production and assembly site for first stages of the Saturn IB and Saturn V launch vehicles to be used in the Apollo program. The Mississippi Test Facility, also under Marshall Center, is the site for ground testing first and second stages of the Saturn V vehicle.

LTV was one of three companies which submitted proposals to the Marshall Center.

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December 22, 1965

IMMEDIATE RELEASE

Release No. 65-311

HUNTSVILLE, Ala. -- The NASA-Marshall Space Flight Center has awarded a one-year contract to Aero Spacelines, Inc., Santa Barbara, Calif., for flying large rocket cargoes in its "Super Guppy" aircraft.

Aero Spacelines' "Super Guppy" is the only aircraft in existence which can fulfill the size and weight requirement for such out-sized cargoes as the S-IVB stage of the Saturn vehicle, the Saturn IB and Saturn V instrument units, and the Lunar Excursion Module adapter.

The contract, for an estimated $1.6 million, will run through November 30, 1966, and provide for three one-year renewal options. The agreement also provides for an extension of a previous NASA-Aero Spacelines contract for the use of the firm's smaller "Pregnant Guppy" craft.

An enlarged and improved version of the Pregnant Guppy, the Super Guppy -- also a modified Stratocruiser -- has some 49,790 cubic feet of cargo space. Aero Spacelines, a subsidiary of Unexcelled Chemical Corp., New York, describes the plane as the world's largest aircraft.

The Super Guppy has an inside diameter of 25 feet and a wingspan of some 156 feet. Cargo is loaded through the craft's hinged nose.

Marshall Center plans to begin a scheduled flight test of the cargo craft December 29. A "dummy" S-IVB stage is to be flown at Tulsa, Okla., to obtain flight vibration and environmental data.

MORE

NASA expects to use the craft to fly the S-IVB stage, built and tested in California, to the Kennedy Space Center for launch. Lunar Excursion Module adapters will also be transported in the craft for the Manned Spacecraft Center in Houston, Texas.

Aero Spacelines' first NASA contract was a two-month one awarded May 28, 1963, for transporting of Saturn I second stages and other large hardware in the "Pregnant Guppy." Three subsequent one-year contracts followed.

# # #

Public Affairs Office
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December 28, 1965

IMMEDIATE RELEASE

Release No. 65-312

HUNTSVILLE, Ala. -- The NASA-Marshall Space Flight Center got its Saturn V ground testing program into full swing in 1965, while at the same time bringing its 10-vehicle Saturn I program to a successful end.

A high point in the Saturn V rocket ground test program was reached in August when all three stages of the 365 foot tall vehicle were captive tested for full durations.

The 7.5 million pound thrust S-IC-T booster, non-flight replica of the Saturn V first stage, was fired for 2-1/2 minutes on August 5 at the Marshall Center.

An S-II "battleship" stage was captive tested for 6-1/2 minutes on August 9 at Santa Susana, Calif., test range. The stage's five J-2 engines produced one million pounds thrust.

The battleship S-IVB stage was fired successfully for a full duration test August 20 at Sacramento, Calif. In a test simulating a flight to the Moon, the S-IVB was ignited, cut off and re-ignited to complete its test program. The stage ran for three minutes before being cut off for a 30 minute "orbital coast" period. It was then re-ignited for a 355 second run.

The first flight S-IVB stage, scheduled to fly on the Saturn IB launch vehicle, was fired for 452 second acceptance test on August 5.

MORE

Marshall Center climaxed a four-year Saturn I launch series in 1965 with three perfect launches. The three vehicles, carrying Pegasus meteoroid detection satellites, were launched January 16, May 27 and July 30. The Saturn I program demonstrated the feasibility of clustering rocket engines, the use of liquid hydrogen as a fuel for upper stages was advanced, and rocket guidance equipment concepts were advanced.

And final preparations were made for the initiation of the Saturn IB flight program, the first vehicle being now on the launch pad at the NASA Kennedy Space Center.

Another 1965 highlight was the completion, exactly on schedule, of the first Saturn V flight booster at the Marshall Center. Scheduled for launch in 1967, the big stage was wheeled from its assembly hangar in September.

Marshall Center's ground test program also included captive tests of the first three Saturn IB flight boosters, a J-2 engine test series, structural tests in a new Load Test Annex, and F-1 engine captive tests.

Prime contractors prominently involved in these key 1965 accomplishments included Chrysler Corp., Douglas Aircraft Co., IBM, Boeing Co., North American Aviation's Rocketdyne and Space Systems divisions, and Fairchild-Hiller.

During the coming year, the Marshall Center will see Saturn V flight booster captive tests, F-1 and J-2 engine firings and dynamic tests of the complete three-stage Saturn V launch vehicle.

MORE

Late in 1965, the Marshall Center was assigned management responsibilities in the Apollo Applications area. MSFC will be responsible for development and procurement of launch vehicles, integration of experiments into the lunar excursion module, Saturn instrument units and S-IVB stages (top stages of both Saturn IB and Saturn V vehicles).

# # #

Public Affairs Office
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Phone: 876-1959, 876-1102
(Charles Kurtz - Fayetteville, Tenn 433-4958)

December 28, 1965

IMMEDIATE RELEASE

Release No. 65-313

HUNTSVILLE, Ala. --The NASA-Marshall Space Flight Center ends 1965 with 7,522 employees earning in excess of $82 8 million. About 700 of these government employees are located in contractor plants throughout the United States.

At the year's end, there were some 4,280 contractor employees working at the Ma shall Center's Redstone Arsenal complex. Their estimated earnings were $43 million, bringing the Center's direct and indirect payroll for 1965 (combined Civil Service and contractor) to about $125. 8 million.

An estimated 10,000 other contractor workers are employed by contractors in Huntsville in connection with Marshall Center programs.

Dr. Wernher von Braun, MSFC director, said there has been no appreciable change in the number of civil service and contractor personnel here during the year and that no significant change is expected in the next year.

The Marshall Center budget for fiscal year 1966, which began July 1, is $1. 8 billion, an increase of about $100 million over fiscal year 1965. MSFC spends some 90 per cent of its total budget with industry.

MORE

Huntsville area and Alabama business firms received a large share of the contract dollars. A total of more than $56 million was awarded to state business firms during 1965.

Construction contracts awarded during the year at the Marshall Center's Redstone Arsenal complex, totaled $9.2 million. A total of $133 million worth of construction has been completed here in the years 1961 through 1965.

# # #

Public Affairs Office
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FOR RELEASE

January 7, 1966

Release No. 66-4

HUNTSVILLE, Ala. --A high-altitude test chamber at the Air Force's Arnold Engineering Development Center near Tullahoma, Tenn., is being expanded for test of the third stage of the National Aeronautics and Space Administration's Saturn V launch vehicle which is being developed under direction of the NASA-Marshall Space Flight Center here.

The test cell, designated J-4, has an underground exhaust chamber 250 feet deep by 100 feet in diameter. The rocket stage to be tested is the S-IVB, a 200,000-pound thrust unit designed to place astronauts on a trajectory to the Moon.

The heavy (battleship) test model S-IVB, now enroute from Sacramento, Calif., by water, is expected to arrive at Arnold later this month. The stage is 58 feet long and more than 21 feet in diameter. It serves as the top stage of both the Saturn IB and the Saturn V launch vehicles.

In its Saturn V application, the stage burns briefly to place itself and the Apollo spacecraft into earth orbit. After a coast period, it reignites to increase its velocity from about 17,000 to 25,000 mph -- enough to send the Apollo to the Moon.

MORE

The tests at Arnold are to verify the stage's reignition capability under simulated conditions of high altitude.

Principal alterations to the cell involve extension of the above-ground test section and its protective blast-wall. Also, additional storage near the cell is needed to handle the large amount of propellants necessary for the stage.

The tests, to be conducted for the Marshall Center by Aro, Inc., operating contractor for the Air Force, are expected to run from six to nine months and include 15 tests.

Personnel from Rocketdyne Division of North American Aviation, manufacturers of the J-2 engine which powers the stage, and from Douglas Aircraft Co., stage developers, will assist with the test.

Completion of all modification and expansion work is scheduled for mid-1966 when testing of the J-2 engine coupled with the S-IVB stage will begin.

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Public Affairs Office
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Phone: 876-1102, 876-1959
(Joe Jones - residence 852-8847)

January 6, 1966

IMMEDIATE RELEASE

Release No. 66-5

HUNTSVILLE, Ala. --A two-day Conference on Cleaning and Contamination Control, with the presentation of 14 technical papers and a panel discussion, will be sponsored by the NASA-Marshall Space Flight Center here January 11-12.

The conference, designed to bring together NASA and industrial contractors for an exchange of information on problems of contamination and cleaning of vital rocket systems and parts, will be conducted in the Center's Morris Auditorium.

The banquet portion of the meeting January 11 will feature guest speaker, John E. Condon, director, Office of Reliability and Quality Assurance, NASA Headquarters, Washington, D. C.

Host of the meeting is Werner R. Kuers, director of MSFC's Manufacturing Engineering Laboratory. The program is being coordinated by Fred J. Beyerle of Manufacturing Engineering. Co-chairmen of the meeting -- serving with Beyerle -- are R. K. McSheehy of the NASA-Manned Spacecraft Center, Houston, Texas, and Clarence Riley, Boeing Co.

MORE

Prime concern in the conference will be application of cleaning and contamination control to Saturn and Apollo components.

About 200 attendees, representing both NASA and industry, are expected to participate. The meeting which will be opened by Dr. M. P. Siebel, deputy director, Manufacturing Engineering Laboratory.

Taking part in the oral and written presentations will be Dallas N. Vickers, MSFC Quality and Reliability Assurance Laboratory; Stan Colson, Boeing Co.; Frank Keenan, General Electric Co.; George Charron, Chrysler Corp.; Carl Etz, McDonnell Corp.; Dennis Conley, General Electric Co.; Ben Chapman, North American Aviation, and Dave Van Dellan, Douglas Aircraft Co.; William Birch, Marotta Valve; John Farris, Aircraft Posour Media; Kenneth Kampenga, Arrowhead Products; Ed Maloney, Martin-Marietta; J. Mason Pilcher, Battelle Memorial Institute; and Al Lieberman, IIT Research Institute.

Conference panel members for the discussion portion of the program are Chairman Milt Steen, Lockheed; Clarence Riley, R. K. McSheehy, Mitch Pickard, MSFC Quality and Reliability Assurance Laboratory, and Fred J. Beyerle.

# # #

MSFC

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January 7, 1966

IMMEDIATE RELEASE

Release No. 66-6

HUNTSVILLE, Ala. --More than a quarter of a million visitors poured into the NASA-Marshall Space Flight Center during 1965 to get a down-to-earth look at what's going on up in space.

Included among the visitors were 989 foreign nationals from 47 countries.

The most popular attraction here, easily accessible to the public, is the Space Orientation Center, which contains a cross section of space hardware in the form of exhibits. About 200,000 visitors toured that area alone.

Last year about 175,000 persons visited the Center. During 1964, about 100,000 were recorded.

This year's record 246,000 does not include those who visited Marshall Center facilities in Mississippi and Louisiana.

# # # #

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January 7, 1966

IMMEDIATE RELEASE

Release No. 66-7

HUNTSVILLE, Ala. --Two NASA-Marshall Space Flight Center scientists will deliver technical papers during a two-day Interdisciplinary Symposium on Apollo Applications to be held in Huntsville January 12-13.

Dr. Russell D. Shelton of the Research Projects Laboratory will speak on "Concepts for an Emplaced Scientific Station on the Lunar Surface."

Dr. Fritz R. Krause of Aero-Astrodynamics Laboratory will speak on "Remote Sensing with Optical Cross Correlation Methods." M. J. Fisher of the Illinois Institute of Research co-authored the paper with Krause.

An official from the National Aeronautics and Space Administration Headquarters, Washington, will deliver the key address at a banquet Wednesday evening (January 12). He is D. D. Wyatt, deputy associate administrator for programming.

The symposium, to be held at the Sheraton Motor Inn, is sponsored by the Society of Engineering Sciences. Apollo Applications is a proposed program to use to the fullest the techniques and the hardware developed for the Apollo manned lunar landing project.

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Public Affairs Office
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January 10, 1966

IMMEDIATE RELEASE

Release No. 66-9

HUNTSVILLE, Ala. -- Twenty six employees of the NASA-Marshall Space Flight Center with a combined 531 years of service retired during the last two months of 1965. Fifteen others have applied for retirement and their applications are pending.

Jeannie Hughes, a mathematics technician in the Aero-Astrodynamics Laboratory, had the most service among the retirees -- 37 years.

Those with 30 or more years were Oliver Snow of Astrionics Laboratory; Ben F. Morrow, and Ralph F. Goodwin, Technical Services Office; Lona L. Rasberry, Manufacturing Engineering Laboratory.

Other retirees and the length of service were Cornelius D. Griffin, 16; John Cresap, 25; Grady F. Gaston, 9; and Wilmer E. Hall, 25, all of the Manufacturing Engineering Laboratory; Erby L. Mitchell, 15; Dee V. Bauer, 15, Thomas E. Kennedy, 11; Curtis N. Larry, 9; Erwin E. Green, 16; and Charles U. Schoulin, 19, all of the Technical Services Office.

Edward T Weir, 25; Adolf L. Herrmann, 12; and Richard L. Sage, 19; all of Astrionics Laboratory; Del C. Nickelson, 15; Claude W. Bailes, 27; and Arthur O. Boyanton, 20, all of Test Laboratory; Marvin A. Legette, 12, Facilities and Design Office; Henry T. Williams, 24, Mississippi Test Facility;

MORE

Talbert F. Lister, 21, Computation Laboratory; Harry K. Childers, 19, and Thomas Bedell, 18, both of the Quality and Reliability Assurance Laboratory.

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January 10, 1966

IMMEDIATE RELEASE

Release No. 66-10

HUNTSVILLE, Ala. --The most careful spic-and-span housekeeper would find that her livingroom is actually filthy when compared to the "cleanroom" at the NASA-Marshall Space Flight Center.

The glistening cleanroom in the Center's Manufacturing Engineering Laboratory is used to disassemble, clean and inspect a variety of guages and other rocket parts.

Foreign matter as small as a speck of dust, as small as the diameter of a hair, can cause a rocket component to malfunction. The size of these minute villians which MSFC technicians search out and destroy is measured in "microns." A micron is 0.000039 of an inch.

The Laboratory's interests range from particles 20 to 2,500 microns in size, depending upon the type of component being cleaned.

To illustrate the exactness with which the contamination controllers must search, the period at the end of this sentence, about 100 microns in size, could foul up a working rocket part.

Says Fred Beyerle of the ME Lab:

MORE

"Even the breath of a smoker, which emits particles about 2 to 5 microns in size by the millions soon after a smoke, can cause contamination problems in some industrial areas."

Beyerle points out that a Jupiter rocket many years ago exploded, simply because it had a contaminated two-inch stainless steel line.

That is the reason behind MSFC's ultra cleanliness.

The lab's hunt for conglomerate dust particles, tiny oil deposits from fingerprints, and other such contaminants among small rocket components is carried out in a little room of white paint and stainless steel. The room is cleaner than a hospital operating room, Beyerle said.

The cleanroom technicians look like Arabian shieks in their long white dress and hoods.

When a visitor enters the room, his shoes are given a shine by an electric buffer; he steps on a "tacky mat" that picks up additional dirt, enters an air lock and, as he slowly makes one complete revolution, is blasted with "scrubbed air."

Donning a specially laundered "bunny suit", which leaves only face and hands uncovered, one enters another air lock and tracks across a second "tacky mat." Then, out of the lock into the cleanroom where the ceilings are washed periodically with de-ionized water, blueprints are laminated with protective plastic, and one must write with only ballpoint pens.

In short, one feels really clean.

"We use a variety of cleaning methods for these parts," said Beyerle, a University of Miami graduate. Ultrasonics is one of these methods. Here a liquid cleaning agent is shattered into thousands of high speed particles by sound vibrations. Battering themselves relentlessly against the rocket parts, the ultrasonic molecules remove foreign materials.

In addition to this method, well-trained cleanroom technicians use sprays, immersions, and other methods to insure the cleanliness of the metallic patients they doctor.

"Fuel tanks and lines are given stringent controls in our facility, through use of a portable, plastic cleanroom that encases the tank entrance," he said.

"We raise the huge tanks into a vertical position and, with high pressure spray nozzles, blast the complete interior of the tank with special chemical fluids," Beyerle commented.

This Marshall-developed procedure has now become standard for MSFC vehicle stage contractors dealing with contamination control.

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January 13, 1966

IMMEDIATE RELEASE

Release No. 66-14

HUNTSVILLE, Ala. --Endurance tests are being conducted at the NASA-Marshall Space Flight Center on an eight-foot box beam made of a material which promises to become an important metal for aerospace applications

The men who designed huge Saturn space vehicles here have been studying the rare metallic element called beryllium for some time because it is only one fourth as heavy as steel, yet retains exceptional rigidity and is extremely strong. It is already used in smaller rocket components to curb weight of the rocket and thus add vital pounds to the payload it delivers into space.

Engineers here have known for a long time that beryllium would be highly attractive for aerospace structures and applications but have not had the opportunity to subject it to the proper environmental tests until now.

The beryllium beam fabricated is believed to be the largest beryllium sheet metal structure in existence. Despite its eight foot length, it weighs only 22 pounds. It will be used to study beryllium fabrication processes, assembly methods, and to define design problems for aerospace structures.

MORE

Tests conducted on the beam -- which was made by the Berylco Company -- will be geared to learn the deflection characteristics of beryllium structures and their modes of failure, such as buckling and fracturing.

Engineers have a healthy respect for some of the known health hazards of beryllium manufacturing. Small components are produced here in a special building where a powerful vacuum pump is located at each milling and grinding machine to suck up the dust. Occupational health authorities have checked employees periodically for symptoms of silicosis but it hasn't developed.

Josef F. Blumrich, chief of the Structural Engineering Branch, Propulsion and Vehicle Engineering Laboratory, said problems also exist in forming beryllium at this time because it requires special equipment and technology, and because it has poor ductility and deformation characteristics. However, progress has been made in rolling, forging and extrusion. He added that joining is still a difficult process. For example, plug soldering has been used to attach reinforcements because mechanical fasteners, such as rivets, have presented problems because of associated cracking. Extensive research is now underway on joining beryllium components with adhesives. Some bolts have already been used in joining after a cushion of epoxy adhesive was used between the beam and steel fittings.

During the tests, which will cover the next few months, the beryllium box beam will be subjected to a vibration load test. Next the beam will be "static" tested--that is subjected to load tests of varying weights to determine various stresses and deflections of the beam.

Blumrich predicts that this lightweight beryllium beam could stand a load of about 10 tons at each of the two steel fittings before it failed.

If the tests are successful, beryllium could easily be the most economical material available for certain satellite components.

This is because each pound of weight in a satellite requires 10 more additional pounds in the launch vehicle in order to lift it into orbit.

# # # #

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January 12, 1966

IMMEDIATE RELEASE

Release No. 66-15

HUNTSVILLE, Ala. -- Two executives who played a part in establishing labor policies for the National Aeronautics and Space Administration in 1960 got together again today at the NASA-Marshall Space Flight Center.

The two are William T. Dodd, executive vice president of the United Association of Journeymen and Apprentices of Plumbing and Pipefitting Industry, Washington, D. C., and Harry Gorman, MSFC deputy director.

Gorman was host to Dodd, Martin Ward, assistant secretary-treasurer of the union, and Turner Davis, business agent of Huntsville Local 377, for a tour yesterday of the Marshall Center. The group will visit the MSFC-Mississippi Test Facility tomorrow.

Gorman and Dodd were members in 1960 of the Nystrom Committee established by the then Secretary of Labor Mitchell to investigate labor policies for the newly-formed National Aeronautics and Space Administration.

Dodd, one of two labor movement representatives, and Gorman, the NASA delegate, were members of a five-man committee headed by the Department of Labor's Nystrom.

Gorman said most of the committee's recommendations were accepted and put into effect by the Department of Labor.

Dodd and Ward came to Huntsville to see the rocket research and development work being done here.

The union vice president, who was making his second trip to the Marshall Center, said the information he gained here and the things he saw "will help me better understand future labor-management problems."

Dodd, who became executive vice president of the union in November of 1950, said that his main interest on this trip is the Mississippi Test Facility. There are a great number of plumbing and pipefitting union members installing cryogenic plumbing on test stands there.

Gorman said that Dodd and Ward would be briefed tomorrow on "how we propose to establish management and labor relations at the Mississippi Test Facility."

Union executive Ward will step up to the position of financial secretary treasurer of the national union in March. There are approximately 250,000 members in the union. Davis said that the Huntsville local has some 325 members.

Accompaning the group on the MSFC and MTF trip are Paul Styles, MSFC labor relations director, and C. H. Huth, assistant to Gorman.

# # #

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January 18, 1966

IMMEDIATE RELEASE

Release No. 66-20

HUNTSVILLE, Ala. --One hundred welding engineers and technicians are expected to attend a one-day "Aluminum Weld Development Complex" conference tomorrow (January 19) in the Morris Auditorium at the NASA-Marshall Space Flight Center.

Eight papers will be delivered at the meeting by research institution and industry representatives. MSFC's Manufacturing Engineering Laboratory is sponsoring the conference.

James Orr, of the Manufacturing Research and Technology Division, will serve as conference chairman, Richard Poorman, of the Welding Development Branch, will be technical chairman.

Speakers include:

Douglas Cheevers, Battelle Memorial Institute, "Base Material"; Dr. Dan Pollock, Douglas Aircraft Co., "Mechanisms of Porosity Formation"; William E. Strobelt, Boeing Aircraft Co., "Gas Analysis";

Jack Rudy, Martin Marietta, "Weld Defect vs Joint Performance"; Ed Seay, Lockheed, "Data Transfer"; Don Cole, Harvey Aluminum, "Time Temperature Control"; Fred Seaman, Westinghouse, "Relationships Between Weld Quality and Non-Vacuum Electron Beam Welding Procedures";

MORE

Peter Tkac, Lear Siegler, "Solid Stage, Variable Frequence Induction Brazing Power Supply Development".

P. Gordon Parks, of the MSFC Welding Development Branch, will give a conference summary and Robert Hoppes, also of the Welding Development Branch, will make the conference introduction.

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January 18, 1966

IMMEDIATE RELEASE

Release No. 66-22

HUNTSVILLE, Ala. -- Since the accidental discovery of cosmic radio signals in the 1930's, an increasing variety of objects in space has been recognized as extraterrestrial radio sources.

A man who has devoted much of his time to studying this phenomen is Dr. Alexander G. Smith, a physicist and assistant dean of the University of Florida's graduate school.

Dr. Smith will speak during the next Space Science Seminar at the NASA-Marshall Space Flight Center January 26. His subject will be "Scientific Basis of Radio Observations from Space." The meeting will start at 10 a.m. in Morris Auditorium.

Seminar Chairman Conrad Swanson, who invited the speaker, said Dr. Smith taught at the Massachusetts Institute of Technology, Duke University and led considerable research for the Army, Navy and Air Force.

Dr. Smith has also written several books relating radio astronomy and radio signals from space. They are entitled "Microwave Magnetrons"; "Radio Exploration of Planetary System" and "Radio Exploration of the Sun."

Many employees of the National Aeronautics and Space Administration have read and speculated about signals from space. Information which is vital to the understanding of the universe is being received daily from many heretofore invisible objects and many things are being discovered concerning the conditions on neighboring planets.

MORE

In a letter to Dr. Smith, Swanson asked that he suggest during his lecture possible radio astronomy experiments that might be performed in Earth orbit, and from the surface of the Moon.

Laboratory directors and members of the staff of the Marshall Center attend the monthly Space Science Seminar here, which features a scientific lecturer and is followed by a question and answer session.

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February 4, 1966

IMMEDIATE RELEASE

Release No. 66-33

HUNTSVILLE, Ala. --The Computation Laboratory at the NASA-Marshall Space Flight Center is planning to replace almost every item in its de-centralized computer complex with one totally integrated "third generation" computing system.

The new system will be located in the main laboratory building with remote input-output stations in all building complexes that require computing capability. The remote stations, numbering between 50 and 70, will replace computers being used in some of the buildings and provide computation capability for others.

The savings, estimated on the basis of computer rental charges, are expected to be about $4.8 million a year for equipment alone.

Computer equipment replacement will include that at the Slidell, La., computer facility which is used in support of the Marshall Center's Mississippi Test Facility in Hancock County, Miss., and Michoud Assembly Facility at New Orleans. Slidell and Huntsville will have independent systems with a full duplex transmission link.

The Marshall Center, directed by Dr. Wernher von Braun, is responsible for developing the Saturn family of space launch vehicles.

About 6,100 square feet of space on the first floor of the lab's "B" wing will be modified to receive the new equipment. The work will include ceiling modification, partition removal, replacement of wooden raised floors with a metal clad floor, modification of under-floor electrical buss system and building electrical service, and modification of the air conditioning system. The modifications will take about 11 months and cost about $245,000.

MORE

Most of the replacements of equipment will begin in 1967, both at Slidell and Huntsville, with various items scheduled for installation during various months. Replacement of the entire system should be completed during 1968.

Types of computers to be replaced at Huntsville and the number of each are: IBM 7094 Model II, 2; Burroughs B5500, 1; CDC 3200, 1; IBM 7010, 1; IBM 1410-7740, 1; IBM 1620, 7; GE 235, 7; GE 205, 2; SDS 930, 4; RPC 4000, 1; Recomp II, 1; and IBM 1401, 4. At Slidell: IBM 7094 Model II, 1; IBM 1401, 1; IBM 7094 Model II/7040, 1; Honeywell H 800, 2; Honeywell H 1800, 1; and Honeywell H-200, 2.

Included in the design of the new system was consideration of the importance of avoiding failures of equipment or facilities. Catastrophic failure of any of the facilities, such as power, lights or air conditioning, could paralyze such a central computing system until the failure cause could be isolated and rectified.

Design criteria of the entire system has included this criticality to be sure that no combination of statistical failures will have an adverse effect which will result in a system effectiveness of less than 99 per cent.

Requests for proposals from industry have been issued and a pre-proposal conference held at the Marshall Center for representatives of firms interested in submitting proposals to supply the computing equipment. The conference, held January 13, was attended by representatives of seven firms. Proposals are expected to be in by mid-February for evaluation.

"First generation" computers were hand-wired machines using vacuum tubes and other electronic equipment available a few years ago. "Second generation" computers replaced vacuum tubes with transistors and used other miniaturized "solid state" components. A "third generation" computer is a highly refined, multi-programmed, multi-processor machine.

With the present second generation equipment, engineers bring their problems to a programmer who "writes" the computer program and runs the job on the machine. The results are then returned to the engineer.

With the new computing system, engineers will feed information into the system from remote input-output (IO) stations in the various buildings. The results will be fed back shortly to the IO stations.

The system now in use can work on only one program at a time, which results in computer time loss. The new system will operate almost continuously, switching from one to another of several programs being run at the same time.

For example, when the computer processor reaches a temporary "idle point" in one program, it will switch to a second program and work on it until time to return to the first program.

An example of an idle point is when the processor has completed a series of additions and the next programmed command is to print out the results. The computer's output device takes over at that point for the print-out process, leaving the processor free to go on to a second program.

In this manner, the machine may reach idle points in several programs before time to return to the first program and resume computations.

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February 7, 1966

IMMEDIATE RELEASE

Release No. 66-34

HUNTSVILLE, Ala. -- A pre-proposal conference for firms interested in bidding on a one-year multi-million dollar computer support contract will be conducted Wednesday (February 9) at the NASA-Marshall Space Flight Center.

Marshall Center procurement officials asked for bids on January 27. Proposals are due March 14.

The contract will be for support of the Marshall Center's Computation Laboratory and all work will be performed here. It will be for one year with option to extend for four additional one year periods.

Work will include computer operation, management engineering, data system and computer equipment maintenance, computer programming and other related work.

General Electric Co. is the present Computation Laboratory support contractor. The firm has held the contract since the Marshall Center was formed in 1960 and previously held similar contracts when the organization was a part of the Army Ballistic Missile Agency.

# # #

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February 14, 1966

IMMEDIATE RELEASE

Release No. 66-36

HUNTSVILLE, Ala. -- The NASA-Marshall Space Flight Center is using seven vessels to transport large rocket stages and components between manufacturing, test, and launch sites.

Saturn marine transportation equipment has grown from one craft in 1960 to its present size. There are presently six river and ocean-going barges and one ship in operation.

Marshall Space Flight Center's newest vessel, the barge Poseidon, arrived at the NASA-Kennedy Space Center in Florida recently with a Saturn V stage.

The S-IC and S-II stages of the Saturn V launch vehicle, MSFC's largest vehicle, are too large for conventional road, rail, or air transport. The largest unit, the first stage (S-IC), is 138 feet long, 33 feet wide, and weighs about 300,000 pounds empty. From the beginning of the program, it was planned to make major use of water transportation.

Saturn manufacturing, test, and launch sites are all located on major waterways since water is the only practical way to transport the larger stages. Major manufacturing, testing, and launch areas are in Huntsville, Ala.; New Orleans, La.; Bay St. Louis, Miss.; Los Angeles and Sacramento, Calif.; and Cocoa Beach, Fla.

MORE

Huntsville-built stages are loaded at a Tennessee River dock. The barge carrying the stage is towed down the Tennessee, Ohio, and Mississippi rivers to New Orleans. The vessels then cross the Gulf of Mexico and proceed up Florida's east coast to Cape Kennedy. The 2,000 mile trip takes about two weeks.

A typical west coast to Kennedy Space Center journey is about 4,800 miles and requires some 16 days. The S-II stages built in the Los Angeles area by North American Aviation are loaded onto an ocean-going ship, the USNS Point Barrow, for the journey through the Panama Canal and on to Cape Kennedy. S-IVB stages built by Douglas Aircraft are first shipped to Sacramento, Calif., for testing, and then are shipped to KSC.

A description of the seven vessels follows:

Saturn I barges, "Promise" and "Palaemon," have been in operation for nearly five years. These pioneering vessels will continue in use in the Saturn IB program.

The smaller of the two,Palaemon (180 feet long), is being used primarily to transport Saturn IB boosters between the Michoud Assembly Facility, where they are manufactured by the Chrysler Corp., and the Marshall Space Flight Center, where they are static fired. A new wheelhouse was recently added to Palaemon.

The "Promise" (260 feet long) carries Saturn IB boosters from Huntsville and Michoud to the Kennedy Space Center where they are launched. Promise, the larger of the two Saturn IB barges, is being used for most of the Gulf and ocean transportation in the program.

The U.S. Navy turned over to MSFC five additional sea-going barges of the Promise type, one of which was given to the NASA-Kennedy Space Center. They are known as YFNB class barges. Like the Promise, they are 260 feet long and 48 feet wide, with an operating draft of seven feet. All have been modified for Saturn roles. Two of them, like the Promise, have deck-mounted cargo hangars for enclosing rocket stages. The other three are used for short "hauls" and have open decks.

One of the Navy YFNB vessels has been outfitted for movement of the S-IC stage between Michoud, MSFC, Mississippi Test Facility, and Kennedy Space Center. This craft, the Poseidon, has a large deckhouse (50 feet wide, 43 feet maximum height, and 200 feet long) to enclose the S-IC stage.

Modifications to the barge included reinforcement of decks, modifications to electrical power plants, tie-down and mooring systems, and the addition of a ballast system to compensate for varying dock heights. The barge is a river and ocean-going ship in every respect except that it, like all the other barges, depends on a tug or tow boat for propulsion.

Another large YFNB barge, the Orion, is being used on the west coast primarily for movement of the Saturn S-IVB stages from Huntington Beach, Calif., where they are made, to the test site at Sacramento. This trip north to San Francisco and up the Sacramento River is more than 500 miles.

The Orion has a cargo hangar (80 feet long and 30 feet high) erected on the forward half of the deck. Another modification included the installation of a new stabilization system which reduces the effect of wave action upon the vessel.

The other three craft are in use at the Mississippi Test Facility and the Kennedy Space Center.

Two barges, the Little Lake and Pearl River, were modified for use in open deck transportation of stages over short ranges. These vessels transport S-IC stages manufactured by the Boeing Co. at NASA's Michoud Assembly Facility, New Orleans, La., to MSFC'sMississippi Test Facility for static test. Also, S-II flight stages, made at Seal Beach, Calif., and shipped via the Point Barrow to the east through the Panama Canal, are loaded on to these barges at New Orleans and transported the final 40 miles to the test stands at MTF. After ground testing, these flight units will then be returned to the Michoud dock for loading aboard another craft for the voyage to the KSC.

In addition to MSFC's seven vessels, the Center has turned over to the Kennedy Space Center another open-deck YFNB for use in transporting stages from Port Canaveral to the new Saturn V dock at the KSC, via the Banana River, a distance of 10 miles. Stages shipped aboard the USNS Point Barrow are transferred to the Kennedy shuttle barge at Port Canaveral.

The Military Sea Transportation Service (MSTS) is providing a Landing Ship Dock (LSD) for transporting flight S-II stages from the point of manufacture at Seal Beach, Calif., to Michoud, New Orleans, La., and the launch site at KSC. The ship, the USNS Point Barrow, has been modified to provide desired characteristics. These modifications included construction of a covered hangar and installation of a stabilization system.

This vessel is 465 feet long, 74 feet wide, with a 19 foot maximum draft. Its speed is about 15 knots and requires about a month to make the round trip through the Panama Canal.

The Point Barrow is being operated for NASA by the Military Sea Transportation Service. It is the only craft operated by MSFC for stage transportation which is self-propelled. All others require separate tugs.

The Saturn stage transportation program is under the management of MSFC's Project Logistics Office, Transport Branch. Marine equipment was designed, modified, and checked out by MSFC's Test Laboratory. Once equipment is declared operational, ownership is transferred to the Project Logistics Office.

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February 18, 1966

IMMEDIATE RELEASE

Release No. 66-45

HUNTSVILLE, Ala. --A promising method of defining elemental composition and identifying many compounds and minerals on the surfaces of the moon and earth-like planets will be outlined at the NASA-Marshall Space Flight Center by a research scientist from the E. I. du Pont de Nemours Engineering Physics Laboratory in Delaware.

Dr. Herbert Herglotz, the visiting lecturer, will speak on Extraterrestrial Applications of X-ray Diffraction at a regular Space Science Seminar in Morris Auditorium from 10 a.m. until 11:30 a.m. Wednesday, February 23.

Dr. Herglotz, a native of Czechoslovakia, said the fundamentals of x-ray diffraction will be described along with the difficulties connected with space applications. He said hardware either specifically designed for space exploration or adaptable for this purpose will also be reviewed.

Marshall Center engineers and scientists each month invite visiting scientists to lecture on certain areas of interest locally. They also allot a certain time for questions and answers.

Dr. Herglotz, whose visit was arranged by Dr. Karl Pschera and Conrad Swanson, both of the Marshall Center, has been with du Pont since 1956. Before that, he taught at universities in Austria and Czechoslovakia.

He holds advanced degrees in chemical engineering, physical chemistry and x-ray physics.

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March 22, 1966

IMMEDIATE RELEASE

Release No. 66-59

HUNTSVILLE, Ala. --Nearly 40 NASA-Marshall Space Flight Center employees who are assigned to various government and contractor operations throughout the United States will visit here March 29 through April 1.

Plans call for a series of briefings and meetings with Marshall Center officials each morning and tours of laboratories and test facilities in the afternoons. The group will also visit the Marshall Center's Mississippi Test Facility and Michoud Assembly Facility in New Orleans March 31.

It marks the first time that resident managers and their employees have visited as a group, although they are in regular contact with the individual Saturn rocket program managers in MSFC's Industrial Operations.

Brig. Gen. Edmund F. O'Connor, director, Industrial Operations, will welcome the group to Huntsville.

Morning lecture sessions by MSFC personnel will cover such topics as contract administration, configuration management, logistics, general responsibilities and authorities of resident managers, possible future projects and various organizations and relationships.

Resident managers in the group are charged with supervising contractor work in connection with the Saturn rocket program. About 90 per cent of the Marshall Center's annual budget goes for this work.

MORE

Those scheduled to attend and their assignments include: Brian Montgomery, Jack Lee, Ross Hunter and J. P. Murphy, Kennedy Space Center, Fla.; Jack M. Balch, Myrl Sanders, Mike Myers and Bob Bush, Mississippi Test Facility, Bay St. Louis, Miss.; Dr. George Constan, Arlin G. Smith, Harold H. Stevenson, Mike Hardee, James Stamy, and Robert J. Nuber, all of the Michoud Assembly Facility;

E. W. Johnson, T. B. Swaggerty, Frank Buffola, P. F. Rogers, Robert Pease, Canoga Park, Calif.; W. J. Hynes, Washington, D. C.; B. D. David, Sid J. Sweat, Huntsville (International Business Machines plant); W. DeWitt Goldsby, Werner K. Gengelbach, John W. Prager and R. E. Brown, Downey, Calif.; L. R. Hall, William C. Fortune, R. H. Young and Melvin Sundstrom, Huntington Beach, Calif.; O. Steed Tyson and Cliff L. Flora, Sacramento, Calif.; W. B. Fry, M. E. Story, West Palm Beach, Fla.; J. E. Tiede, Neosho, Mo.; Charles W. Casey, and Bill Davidson, Houston, Texas; R. Groenveld, Edwards, Calif.; Fred Beason, Huntsville (General Electric Co. plant).

# # # #

Public Affairs Office
George C. Marshall Space Flight Center
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Huntsville, Alabama

Phone: 876-1102, 876-1959
(Charles Kurtz - Fayetteville, Tenn., 433-4958)

March 22, 1966

IMMEDIATE RELEASE

Release No. 66-62

HUNTSVILLE, Ala. -- Five firms submitted proposals on a one-year multi-million dollar computer support contract at the NASA-Marshall Space Flight Center.

Companies responding to the request for proposals due on March 21 were C-E-I-R Inc., Washington, D. C.; Computer Sciences Corp., El Segundo, Calif.; General Electric, Phoenix Computer Department; Ling-Temco-Vought, Range Systems Division, Dallas, Texas; and Wolf Research and Development Corp., Washington, D. C.

Marshall Center officials do not anticipate the selection of a contractor for the work prior to June 30.

The firm winning the award will support the Marshall Center's Computation Laboratory and all work will be performed here. The contract will be for one year with option to extend for four additional one year periods.

General Electric is the present Computation Laboratory support contract.

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Public Affairs Office
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(Joe Jones - residence 852-8847)

March 25, 1966

IMMEDIATE RELEASE

Release No. 66-66

HUNTSVILLE, Ala. --Fifteen scientists and engineers of the NASA-Marshall Space Flight Center will attend two major professional meetings next week, presenting six papers reporting results of research.

A "Stepping Stones to Mars" meeting will be held March 28-30 at Baltimore, sponsored by the American Institute of Aeronautics and Astronautics and the American Astronautical Society.

In Los Angeles March 28-31, the American Meteorological Society and the American Institute of Aeronautics and Astronautics will hold their "Sixth National Conference on Applied Meteorology."

Four Marshall men, Dr. Ernst Stuhlinger, Dr. Russell Shelton and Joseph King, all of Research Projects Laboratory, and G. R. Woodcock of the Advanced Systems Office, have written a paper, "Study of a Nerva-Electric Manned Mars Vehicle," which Dr. Stuhlinger will present at the Baltimore meeting.

Dr. Pearl Fisher of the Propulsion and Vehicle Engineering Laboratory will give a paper at the same meeting on "Evaluation of the Feasibility of In-Flight Sterilization of Mars Probes."

Others at the Baltimore meeting will include William Wales, Propulsion and Vehicle Engineering Lab; Bobby Noblitt, and Carroll Hasseltine, Aero-Astrodynamics Lab; Max Nowak, Manufacturing Engineering Lab; and Ronald Harris, Advanced Systems Office.

MORE

Eight persons from the Aero-Astrodynamics Lab will attend the Los Angeles meeting, presenting the following papers:

"Definition of Turbulence for Space Vehicles," James R. Scoggins and Robert S. Ryan (both will attend, Ryan will present paper);

"The Alleviation of Aerodynamic Loads on Rigid Space Vehicles," Mario H. Rheinfurth;

"Significant Low-Level Wind and Temperature Features Over Cape Kennedy, Fla.," Charles K. Hill;

"Missile Range Reference Atmospheres -- Their Origin and Use," Orvel E. Smith and William W. Vaughan (both will attend; Smith will present paper).

Also attending will be Walton W. Jones and Robert E. Turner.

# # #

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(Charles Kurtz-Fayetteville, Tenn. 433-4958)

FOR RELEASE:

PM's, March 29, 1966

Release No. 66-67

BALTIMORE, Md. --A NASA-Marshall Space Flight Center scientist described a manned flight to Mars using five Saturn V launch vehicles and nuclear spacecraft to delegates attending a "Stepping Stones To Mars" meeting today in Baltimore.

Dr. Ernst Stuhlinger, director of the MSFC Research Projects Laboratory at Huntsville, Ala., told the conference that "all technologies are sufficiently developed to make a flight in 1986 appear possible."

The electric propulsion expert predicted that "sufficient groundwork will be laid during the next six to eight years to justify a decision to proceed with such a project." The following 12 to 14 years will be available for hardware development and testing, he said.

Dr. Stuhlinger made his future space flight observations to a meeting jointly sponsored by the American Institute of Aeronautics and Astronautics and the American Astronautical Society.

Co-authors contributing to the paper presented by Dr. Stuhlinger were Joseph C. King, and Dr. Russell D. Shelton, both of Research Projects Laboratory, and Gordon R. Woodcock, Advanced Systems Office.

Stuhlinger said five Saturn V launch vehicles could carry the components of the Mars electric vehicle and of a Nerva II-powered nuclear earth-escape stage into a 300-mile earth orbit.

MORE

After assembly and checkout, the nuclear stage would accelerate the electric vehicle to escape velocity, he said. Stuhlinger said flight time to Mars on a direct transfer trajectory would be some 145 days.

The MSFC scientist said the vehicle would spiral into a low Mars orbit, while a chemically powered Mars excursion module would make the descent to the surface, and four weeks later would make the ascent back to the orbiting electric vehicle.

He pointed out the time required to return would be about 280 days. The vehicle would spiral into a high Earth orbit outside the Van Allen radiation belt and the astronauts would be carried back to Earth by a commuter rocket.

Dr. Stuhlinger said the proposed Mars space vehicle would carry two identical crew capsules at opposite ends of a long arm. Nuclear-electric power source, electric thrust motors, and the Mars excursion module would be arranged along the central axis of the vehicle.

Artificial gravity would be generated in the cabins, he said, by rotating the vehicle around its center axis about one revolution per minute. By providing the gravity in the crew quarters, he said conventional facilities for working, meal preparation, eating, sleeping and waste management would be practical.

While the mission could be carried out with a single Mars ship, the scientist pointed out that having a fleet of three or four spacecraft to Mars would improve the chances of success. Each of the spacecraft would carry four astronauts and each would require five Saturn V launchings. Should one or even more of the spacecraft become disabled, all the crew members could be carried, if necessary, in one spacecraft.

Crew members could commute between spacecraft by space taxis with chemical propulsion systems, he pointed out.

Dr. Stuhlinger said "of the key developments still necessary, the electric power system undoubtedly requires the major technological and funding effort."

# # #

Public Affairs Office
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April 5, 1966

IMMEDIATE RELEASE

Release No. 66-73

Centers: MSFC

HUNTSVILLE, Ala. --The National Aeronautics and Space Administration has invited 33 firms to submit proposals on a 12-month study of manned Mars and Venus flyby missions using Saturn/Apollo hardware with minimum modifications.

Proposals are due at the NASA-Marshall Space Flight Center May 10.

Such flyby missions in the period 1975-1982 are thought to represent the earliest feasible and desirable manned planetary effort, leading to manned planetary landings later.

This study, based on previous MSFC and contractor efforts, will pay particular attention to earth escape stages based on modifications of the upper stages of the Saturn V launch vehicle (S-II and S-IVB), orbital tanking and assembly operations, launch windows, the spacecraft, and probes to be launched from the spacecraft to the planet surface.

The study is to assume 1970 state-of-the-art, including Saturn V and uprated Saturn V launch vehicles, with spacecraft powered by conventional chemical means. For comparison purposes, a NERVA II nuclear propulsion system will also be considered.

This work is expected to yield a complete outline of such a proposed undertaking; including mission requirements, launch vehicle and spacecraft, scientific experiments, development schedules and resources.

MORE

The source list for the procurement consisted of the following companies: Aerojet General Corp., Avco Corp., Bell Aerosystems Co., Bendix Corp., Boeing Co., Chrysler Corp., Douglas Aircraft Co., Electro Optical Systems, Fairchild Hiller, Garrett Corp., General Dynamics Corp., General Electric Co., Goodyear Aerospace Corp., Grumman Aircraft Engineering Corp., Hayes International Corp., Honeywell, Inc., Hughes Aircraft Corp., Lockheed Aircraft Corp., LTV Aerospace Corp., Martin-Marietta Corp., McDonnell Aircraft Corp., North American Aviation, Northrop Corp., Philco Corp., Raytheon Co., Radio Corp. of America, Ryan Aeronautical Co., Sperry-Rand Corp., Sylvania Electronics Systems, TRW Systems, Thiokol Chemical Corp., United Aircraft Corp. and Westinghouse Electric Corp.

Other firms desiring to submit proposals should contact the MSFC procurement office.

# # # #

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Huntsville, Alabama

Phone: 876-1959, 876-1102
(Charles Kurtz-Fayetteville, Tenn. 433-4958)

April 5, 1966

IMMEDIATE RELEASE

Release No. 66-74

Center : MSFC

HUNTSVILLE, Ala. --The NASA-Marshall Space Flight Center has awarded contracts totaling more than $61 million to nine firms for providing engineering, fabrication, and institutional support services to seven laboratories and three offices at MSFC.

The Marshall Center chose to exercise its options to continue the ten support contracts awarded in 1965. These awards are the first one-year renewals exercised under the original contracts.

Support contractors, the cost of the one-year effort, the laboratory or office supported and the effective dates of the contracts follow:

Sperry Rand Corp., Space Support Division, Huntsville, Ala., $12,635,952, Astrionics Laboratory. March 1.

Vitro Services Division, Vitro Corp., Ft. Walton Beach, Fla., $7,101,055, Test Laboratory. March 16.

Brown Engineering Co., Huntsville, $14,949,695, Propulsion and Vehicle Engineering Laboratory. April 1.

Spaco, Inc., Huntsville, $5,971,638, Quality and Reliability Assurance Laboratory. April 1.

Northrop Corp., Northrop Space Laboratories, Huntsville, $3,905,000. Aero-Astrodynamics Laboratory. March 16.

MORE

Hayes International Corp., Birmingham, Ala., $4,969,257. Manufacturing Engineering Laboratory. March 16.

Brown Engineering Co., $416,860. Research Projects Laboratory. May 3.

Management Services Inc., Oak Ridge, Tenn., $5,560,941, Technical Services Office. April 1.

Rust Engineering Co., Birmingham, Ala., $599,090. Facilities and Design Office. April 1.

RCA Service Co., Camden, N.J., $5,689,067, Management Services Office. April 1.

Some 4,500 personnel will be required to provide the services. This total does not represent a significant change in the number of personnel presently working under the contracts.

The awards are cost-plus incentive-award fee contracts. The original six laboratory engineering support contracts and one office support contract had provisions for four additional one-year renewals. Two contracts for institutional support services had provisions for two consecutive one-year extensions.

The work is primarily in support of the nation's Saturn launch vehicle program. Most of the work under the contracts will be performed on the premises of the Marshall Center. However, some will be performed in contractor facilities at Huntsville and other locations.

Under terms of the cost-plus incentive-award fee contracts, the firms receive a minimum and may receive an additional award fee for superior performance.

# # # #

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Phone: 876-1959, 876-1102
(Charles Kurtz, Fayetteville, Tenn. 433-4958)

FOR RELEASE: 2 p. m. CST, April 6, 1966

Release No. 66-75

HUNTSVILLE, Ala. --The NASA-Marshall Space Flight Center has purchased 22 additional H-1 rocket engines for the Saturn IB launch vehicle from North American's Rocketdyne Division.

The space agency bought the engines under a $7,634,742 modification to an existing contract with Rocketdyne. In addition to the engines, Rocketdyne will provide three years of support services, including training, field engineering, and supply support.

The 205,000 pound thrust engines will complete the engine requirements for the Saturn IB/Apollo program. Four of the engines will be used on the tenth Saturn IB launch vehicle booster and the remaining 18 will be for the last two boosters in the 12-vehicle series, with two spares.

Delivery of the H-1 engines will begin in July and end in November, 1966.

Rocketdyne's contract, including this modification, now totals $36,500,000. NASA had previously ordered 114 H-1 engines for the Saturn IB under the contract.

Saturn IB boosters are assembled by the Chrysler Corp. at NASA's Michoud Assembly Facility in New Orleans.

# # # # # # #

(See reverse side for background)

BACKGROUND--The Saturn IB is a larger, more powerful version of the famed Saturn I. All 10 Saturn I vehicles were launched successfully from Cape Kennedy between October, 1961 and July 30, 1965 proving that rocket engines can be clustered to achieve greater payload lifting capability. The last three Saturn I launch vehicles placed giant Pegasus meteoroid technology satellites into Earth orbit.

The Saturn IB first stage (S-IB) is essentially the same as that of the Saturn I. The eight H-1 engines, burning kerosene and liquid oxygen, have been up-rated from 188,000 to 200,000 pounds thrust to give the S-IB a total thrust of 1.6 million pounds. The second stage (S-IV) of the Saturn I has been replaced on the Saturn IB by the S-IVB powered by a single 200,000-pound thrust J-2 engine which uses the high energy propellant combination of liquid hydrogen and liquid oxygen. The S-IV was powered by six RL-10A3 hydrogen-oxygen engines with a total thrust of 90,000 pounds.

The Saturn IB can place about 18 tons of payload into Earth orbit. It will be used in checking out the Apollo spacecraft, perfecting the rendezvous and docking technique and training astronauts, all in Earth orbit, in preparation for the manned lunar landing mission before the end of this decade. The Saturn IB can also be used for various post-Apollo missions.

The S-IB stage is manufactured in New Orleans by the Chrysler Corp. at the Michoud Assembly Facility , a branch of the NASA-Marshall Space Flight Center at Huntsville, Ala. The Marshall Center, directed by Dr. Wernher von Braun, is responsible for developing the Saturn family of space launch vehicles. The S-IVB stage is manufactured by the Douglas Aircraft Co., Santa Monica, Calif. IBM is prime contractor for the vehicle's Instrument Unit.

The NASA-Manned Spacecraft Center, Houston, Tex., is responsible for Apollo development. Prime contractor for the Apollo spacecraft is North American Aviation Inc. of Downey, Calif., with Grumman Aircraft Engineering Corp. of Long Island, N. Y., providing the spacecraft's Lunar Excursion Module.

The third center in the manned space flight program, the NASA-Kennedy Space Center in Florida, is in charge of the launchings, as well as the preparation of launch facilities.

# # # #

Public Affairs Office
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Phone: 876-1102, 876-1959
(Joe Jones - residence 852-8847)

April 12, 1966

IMMEDIATE RELEASE

Release No. 66-76

Centers: MSFC

HUNTSVILLE, Ala. --In this day of large space vehicles, rocket noise in the vicinity of ground testing and launching facilities is sometimes considered a nuisance. But scientists at the NASA-Marshall Space Flight Center here are turning launch site rocket sound into a big plus in an unusual research effort.

A technique is being developed to measure wind velocities and directions aloft through the recording of the noise from rockets in flight. Such wind information is vital to the design of launch vehicles and the evaluation of flights. This data is presently being gathered in a number of ways, including the launching of small weather rockets and conventional weather "balloons."

But this is the first time an effort has been made to capitalize on the sound of departing vehicles.

To date, four Saturn rockets have served as "subjects" in these experiments, including the Apollo/Saturn 201, which was launched from the NASA-Kennedy Space Center February 26. And the system works.

A series of nine microphones, located 1,000 feet apart at right angles to each other in the form of a cross, are strung out across the eastern tip of Cape Kennedy. As the rocket ascends, its sound is picked up by the mikes and recorded in a nearby van on magnetic tape.

After a minute or so of flight, the sound is in the sub-audible range -- five to 10 cycles per second -- to the human ear, but the instruments "hear" it throughout the booster burn of about 2-1/2 minutes.

MORE

Since sound travels much slower than the rocket's average velocity, sound continues to arrive at the Cape site for about five minutes after cutoff.

Then, by means of a complicated formula developed by the University of Michigan, the sound from the mikes is amplified, cross correlated and associated with known rocket trajectory and time, and out come numbers representing continuous wind velocities and directions at all altitudes up to booster cutoff, about 40 miles.

The work, building upon earlier experiments conducted by the NASA-Goddard Space Flight Center, is performed by Wesley W. Bushmann and associates at the University of Michigan. O. E. Smith of the Marshall Center's Aero-Astrodynamics Laboratory directs it, with field assistance by H. F. Borcherding of the same laboratory.

This method -- which is rather inexpensive and requires no special airborne equipment -- is the only present means of getting continuous wind information to this altitude. The data is useful not only in evaluating the performance of the rockets as they respond to jet streams and other wind conditions, it also helps establish a wind profile for the Cape Kennedy area which is essential in the design of space vehicles.

To check the accuracy of this new technique, the meteorological researchers, in cooperation with the Kennedy Space Center and the USAF Eastern Test Range, have launched weather rockets and radiosondes ("balloons") before and after Saturn launchings and correlated the data from the different systems.

Smith says this new approach is not expected to replace the other systems used to gather this information, but it will supplement them appreciably and provide a type of data never before obtainable.

# # # #

Public Affairs Office
George C. Marshall Space Flight Center
National Aeronautics and Space Administration
Huntsville, Alabama

April 12, 1966

IMMEDIATE RELEASE

Phone: 876-1102, 876-1959
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Release No. 66-77

Install: MSFC

HUNTSVILLE, Ala -- Sixteen members of the International Telecommunications Satellite Consortium (Intelstat) will visit the NASA-Marshall Space Flight Center Friday (April 15).

The Interim Communications Satellite Committee is the representative body of Intelstat, an organization of public and private telecommunications companies from 48 countries, established for joint development, ownership and operation of a global communications satellite system.

The United States' member of this consortium is the Communications Satellite Corp. (Comsat) which has contracted with NASA for the launching of satellites. The first such satellite, called "Early Bird," was launched by NASA in April 1965. The first commercial communications satellite, it carries telephone, television, teletype and other communications on a "rent-a-satellite" basis.

Heading the visiting group will be John A. Johnson, chairman of the committee and a vice president (International) of Comsat. He is former chief counsel for NASA and has been with Comsat for approximately two years.

The committee will receive a briefing on MSFC programs and research projects from Marshall Center officials and will tour several laboratories.

MORE

U. S. representatives, in addition to Johnson, are Richard R. Colino, director of international relations, and Raymond Marchand, executive secretary, both of Comsat.

Committee members and the countries they represent are Cyril Vahtrick, Australia; A. Vancoillie, Belgium; Jean-Paul Boge, France; E. O. Dietrich and Bernhard Seidel, Germany; Dr. S. Nicotera, Italy; M. Itano and J. Kimura, Japan; M. C. Ennen, The Netherlands; E. Esping (Sweden), Scandinavia; L. Terol, Spain and Portugal; and C. J. Gill and A. G. Smith, United Kingdom.

The group will leave Huntsville for the NASA-Kennedy Space Center, Fla., for a tour of its facilities next Monday.

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Phone: 876-1102, 876-1959
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April 14, 1966

IMMEDIATE RELEASE

Release No. 66-79

Installations: MSFC

HUNTSVILLE, Ala. --Nine astronauts from the NASA-Manned Spacecraft Center are scheduled to visit the NASA-Marshall Space Flight Center here April 19-21 for briefings on Saturn IB space vehicles to be used in initial manned Apollo missions.

Those coming next week include three astronauts named to fly the first manned Apollo/Saturn IB mission. These are Virgil I. Grissom, command pilot; James McDivitt and Roger Chaffee.

Grissom was the second American to make a space flight. He piloted a Mercury spacecraft named Liberty Bell 7 on a suborbital mission July 21, 1961. Both Grissom and McDivitt have flown Gemini missions, whereas Chaffee will be making his first flight in Apollo.

Other astronauts due here for three days of classroom work and tours include the backup crew for the first manned Apollo flight: David Scott, Russell Schweickart and Edward White. Others expected are Frank Borman, Walter Cunningham and Walter Schirra. Members of the MSC Flight Crew Support Division will also attend.

Lee B. James, Saturn IB program manager, said the astronauts will be given briefings by Saturn engineers from the MSFC Research and Development laboratories, including primary hardware descriptions and design philosophy. Data from various structural and propulsion tests will be presented.

MORE

During the second day, the spacemen will study flight data on the performance of the first Saturn IB which launched an Apollo spacecraft February 26.

The Saturn IB first stages are built by Chrysler Corp. at MSFC's Michoud Assembly Facility in New Orleans. The second stage is a product of Douglas Aircraft Co. in California. The instrument unit is assembled by IBM, Huntsville.

The Saturn IB, with 1.6 million pounds of thrust in the first stage, is a general purpose launch vehicle which, in addition to its early use in the Apollo program, is expected to be used for various other manned and unmanned flights over the next several years.

# # # #

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FOR RELEASE:

April 30, 1966

Release No. 66-88

Center - MSFC

HUNTSVILLE, Ala. --Full-time summer employment will be offered by the NASA-Marshall Space Flight Center here to 75 young men and women aged 16 through 21 in direct support of the President's Youth Opportunity Campaign.

Employment for the summer jobs will begin in June. The hirings will be over and above normal summer employment levels of the National Aeronautics and Space Administration.

Already working for NASA on a part-time basis during the school year are 152 YOC employees, 18 of whom are employed at the Marshall Center. MSFC has also been authorized additional part-time spaces, bringing that total to 99. With 18 filled, 81 part-time jobs are available through the Alabama State Employment Service.

Employees working part time during the school year are limited to 16 hours per week. However, these employees can be terminated and rehired to work 40-hour weeks during the summer only.

NASA has been authorized a total of 505 spaces for the full-time summer employment program, more than 200 of which are in the manned space flight program either at Marshall, the NASA-Manned Spacecraft Center at Houston or the NASA-Kennedy Space Center in Florida.

The remaining jobs are distributed among NASA's several field centers throughout the United States, including 45 job opportunities under the program at NASA Headquarters in Washington, D. C.

# # # #

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Phone: 876-1959, 876-1102
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Center: MSFC

FOR RELEASE:

1 p.m. CST, April 29, 1966

Release No. 66-89

Also Released in Washington
and New Orleans

HUNTSVILLE, Ala. --The National Aeronautics and Space Administration has selected three firms -- Computer Division of Control Data Corp., St. Paul, Minn.; Industrial Electronics Division of General Electric Co., Charlottesville, Va.; and the Univac Division of Sperry Rand Corp., Minneapolis, Minn. --for competitive negotiations leading to a contract to provide a new computing system at the NASA-Marshall Space Flight Center here.

The space agency plans to lease the new computing equipment, with an option to purchase. Cost is estimated at $20 million.

MSFC intends to replace almost every item in its de-centralized computer complex with one totally integrated "third generation" computing system.

Computer equipment at the Slidell, La., computer facility, which is used in support of the Marshall Center's Michoud Assembly Facility and Mississippi Test Facility, will also be replaced in the changeover.

The new system at Huntsville will be located in the Computation Laboratory building with remote input-output stations in all buildings that require computing capability. The remote stations will replace computers being used in some of the buildings and provide computation capability for some new locations.

The replacement of equipment is expected to begin in 1967, both at Slidell and Huntsville.

MORE

"First generation" computers were hand-wired machines using vacuum tubes and other electronic equipment available a few years ago. "Second generation" computers replaced vacuum tubes with transistors and other miniaturized "solid state" components. A "third generation" computer is a highly refined, multi-programmed, multi-processor machine with remote access.

# # # #

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Phone: 876-1959, 876-1102
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April 29, 1966

IMMEDIATE RELEASE

Release No. 66-90

Center: MSFC

HUNTSVILLE, Ala. --Thirty-eight NASA-Marshall Space Flight Center employees were honored this week by Director Wernher von Braun in the presentation of four Federal service awards totaling 140 years, three outstanding performance ratings and 21 other awards with total cash benefits of $9,010.

Forty-year service pins went to Isaac Whitson of the Astrionics Laboratory and James W. Smith of Aero-Astrodynamics Laboratory (now retired). Thirty-year pins were presented to Josef Brookshire of Financial Management Office and Royal L. Scott of Management Services Office.

Cited with Outstanding Performance Ratings were Earl H. Eubanks of the Contracts Office, Clyde D. Bean of the Aero-Astrodynamics Laboratory and Stanley L. Fragge of Management Services Office.

Eight employees received a total of $3,100 for superior performance of duties. They were: James S. Strong, Propulsion and Vehicle Engineering Laboratory, $250; Carl D. DeNeen, Projects Logistics Office, $600; Robert S. Stimler, Test Laboratory, $300; Milton T. Herrin, Computation Laboratory, $350; Robert L. Saidla, Test Laboratory, $450; Charles L. Rushing, Manufacturing Engineering Laboratory, $350; Brenda C. Baeder, Propulsion and Vehicle Engineering Laboratory, $200; and Clyde D. Baker, Aero-Astrodynamics Laboratory, $600.

MORE

Receiving Sustained Superior Performance awards were: Angela N. Lawrence, Aero-Astrodynamics Laboratory, $200; James E. Bradford, Saturn V Program Office, $600; Miriam S. Hopkins, Aero-Astrodynamics Laboratory, $350; and Benjamin J. Herman, Projects Logistics Office, $500.

Suggestion awards were: William S. Smith, Management Services Office, $290; J. B. Dunn, Technical Services Office, $270, accepted on his behalf by Herbert Woolf; Ronald N. Abraham, Saturn V Program Office, $175; and Walter W. Tribble, Resources Management Office, Industrial Operations, $625.

A $300 invention award went to James D. Byrd of Propulsion and Vehicle Engineering Laboratory, and a $200 award was presented to Billy K. Davis of Manufacturing Engineering Laboratory. Three Astrionics Laboratory employees, Michael T. Borelli, Harry J. Daniels and Hans H. Hosenthein, shared a $900 invention award.

Two Group Achievement Awards were made, each to a group of five men in the Contracts Office. Each award was $750. The five in the first group were Alfonso C. Jolliff, Milan D. Burns, Paul E. Anderson, Herbert A. Kitchens and Albert E. Chesley. In the second group were James H. Goldsmith, Ronald D. Backer, Daniel R. Clough, Edward L. Caldwell and Ronald R. Bringman. Chesley and Bringman are stationed at Canoga Park, Calif.

# # #

Public Affairs Office
George C. Marshall Space Flight Center
National Aeronautics and Space Administration
Huntsville, Alabama

FOR RELEASE:
AM's, May 10, 1966

Phone: 876-1959, 876-1102
(Charles Kurtz-Fayetteville, Tenn. 433-4958)

Release No 66-94

TULSA, Okla., -- "Logging" holes bored several hundred feet below the moon's surface may help man gain a better understanding of the solar system, Dr. O. K. Hudson of the NASA-Marshall Space Flight Center, said last night.

Dr. Hudson, of the MSFC Research Projects Laboratory said boreholes may be drilled by man during the early moon explorations in 1970-72.

The Huntsville, Ala., scientist discussed the National Aeronautics and Space Administration's conceptual studies for lunar borehole logging at the Seventh Annual Meeting and Logging Symposium of the Society of Professional Well Log Analysts May 8-11 in Tulsa, Okla.

Borehole logging is the measurement of the physical and chemical properties of the sidewalls of drilled holes. Instruments lowered by cables can monitor such things as temperature, radioactivity, material density, and electric and magnetic properties. Dr. Hudson said the lunar application of borehole logging is an extension of oil field-developed technology.

Hudson said the space agency proposes to drill a two-inch diameter hole at least one hundred feet below the moon's surface. The drilling equipment would be carried to the moon as an experiment aboard a manned spacecraft.

The Marshall Center has two feasibility contracts underway to study drilling rigs for installation on the Apollo lunar excursion module. Dr. Hudson said

MORE

scientists will study lunar soil in an attempt to determine its age, origin, history and physical properties.

Dr. Hudson pointed out that in addition to knowledge obtained by measurements of the existent environment, the lunar surface should be a bountiful hunting ground where collections of space debris will be preserved essentially unchanged from the time of their arrival.

"The collection and measurement of artifacts which range in age from the present (wrecks of recent space ships) to debris of cosmic origin even older than our solar system will yield fundamental knowledge obtainable from no other source," he said.

Hudson said NASA began studying logging devices some time ago. Texaco Experiment Inc. manufactured a logging device for the Jet Propulsion Laboratory's Ranger and Surveyor programs.

Borehole logging is being planned as a part of the Apollo Applications program, Hudson points out, adding that the Marshall Center has selected Texaco Experiment, Inc., and Schlumberger Co. to carry out studies on borehole logging techniques.

"The data to be acquired from borehole logging will be used with data obtained by surface measurements and the observations of astronauts," he said, "to begin to piece together an answer to man's oldest question: 'Where did we come from, and where are we going?'"

# # # #

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FOR RELEASE: 1 p. m. CST, May 6, 1966

Release No. 66-96

HUNTSVILLE, Ala. --The National Aeronautics and Space Administration has selected the Computer Sciences Corp., El Segundo, Calif., and the General Electric Computer Division, Phoenix, Ariz., for competitive negotiations leading to a contract to provide support services to the Computation Laboratory of the NASA-Marshall Space Flight Center here.

The cost-plus-award-fee contract will be for one year with provision for four one year extensions. Estimated cost for the first year, including fee, is $6 million.

The work will include computer operation, data system and computer equipment maintenance, computer programming and other related work. Approximately 475 persons will perform these services.

Bids for this contract were requested January 27. Five proposals were received March 21.

General Electric is the present Computation Laboratory support contractor.

# # # #

Public Affairs Office
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May 20, 1966

IMMEDIATE RELEASE

Release No. 66-114

KENNEDY SPACE CENTER, Fla. --A 365-foot tall Apollo/Saturn V lunar rocket will be picked up from its assembly site and carried 3.5 miles to the launch pad May 25, just five years after the late President Kennedy set the goal of sending American astronauts to the moon by the end of this decade.

This test vehicle, designated the AS-500-F, will never make the journey to the moon, however. It is being used to verify launch facilities, train launch crews, and develop test and checkout procedures. The first flight vehicle is scheduled to arrive later this year.

Following the procedures which will be used during preparation for the actual lunar launching, the facilities vehicle was assembled on a mobile launcher in the Vehicle Assembly Building at the NASA-John F. Kennedy Space Center. Assembly and checkout in the VAB began in late March.

A 3,000-ton crawler will move under the mobile launcher, lifting the launcher and the assembled rocket off its support pedestals. The combined weight of the launcher and space vehicle will be almost 6,000 tons. The journey to the launch pad is scheduled to begin about 9 a.m.

In a short ceremony before the event, Dr. George Mueller, NASA associate administrator for manned space flight; Dr. Wernher von Braun, director of the NASA-Marshall Space Flight Center; Dr. Robert R. Gilruth, director of the NASA-Manned Spacecraft Center; and Dr. Kurt H. Debus, director of the NASA-Kennedy

MORE

Space Center, will speak briefly. Master of ceremonies will be Albert F. Siepert; deputy director of Kennedy Space Center. Col. Rocco A. Petrone, director, plans, programs, and resources of Kennedy Space Center, will explain the functions of the AS-500-F vehicle.

Some 500 guests will attend the ceremony and witness the event. They will include representatives of the many companies who built the launch complex, representatives from the Department of Defense and the Army Corps of Engineers, who supervised much of the construction, officials of the National Aeronautics and Space Administration, the Brevard County Commission and Brevard mayors.

# # #

Public Affairs Office
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May 23, 196[illegible]

IMMEDIATE RELEASE

Release No. 66-116

BAY ST. LOUIS, Miss. --Rocket test engineers today were evaluating data following the first full-duration firing of a Saturn V second stage late Friday (May 20), and making preparations for another test of the stage, probably later this week.

The all-systems (S-II) stage was fired at NASA's new Mississippi Test Facility Friday at 7:05 p. m. CST for 355 seconds -- its full flight duration. This vital test followed a "perfect countdown," test officials said.

The firing was conducted by the firm that makes the second stage, the Space and Information Systems Division of North American Aviation, Inc., under direction of the NASA-Marshall Space Flight Center.

Dr. Wernher von Braun, MSFC director, said after witnessing the firing with other MSFC members that one additional firing of the developmental stage would be conducted to conclude this phase of testing.

This stage develops one million pounds thrust in flight from five Rocketdyne J-2 engines. It is powered by hydrogen and oxygen, the largest such rocket stage.

# # # #

Public Affairs Office
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June 24, 1966

IMMEDIATE RELEASE

Release No. 66-138

Also released in
Washington, D. C.

HUNTSVILLE, Ala. --The National Aeronautics and Space Administration has selected Computer Sciences Corp., El Segundo, Calif., to provide support services for the Computation Laboratory at the NASA-Marshall Space Flight Center here.

Estimated cost for the first year of the cost-plus award-fee contract is $5.5 million. The contract begins July 1, 1966, and carries provisions for four one-year extensions.

Work will include computer operation, data system and computer equipment maintenance, computer programming, and related work. Approximately 475 persons will perform the services.

Bids were requested January 27. Five proposals were received March 21 and NASA selected two firms for negotiations on May 6.

General Electric is the present support contractor.

# # # #

MSFC

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Phone: 876-1102, 876-1959
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June 24, 1966

IMMEDIATE RELEASE

Release No. 66-139

Also released in
Washington, D. C.

HUNTSVILLE, Ala. --The National Aeronautics and Space Administration has awarded a contract to Univac, St. Paul, Minnesota, to provide a new computing system at the NASA-Marshall Space Flight Center. Value of the contract is about $30 million over a five-year period.

The contract calls for lease of new computing equipment with an option to buy.

MSFC intends to replace almost every item in its decentralized computer complex with one totally integrated third-generation computing system. Computer equipment at the Center's Slidell, La. facility, which is used in support of the Michoud Assembly Facility and the Mississippi Test Facility, also will be replaced.

The new system at Huntsville will be located in the Computation Laboratory building with remote in-put out-put stations in all buildings that require computing capability. The remote stations will replace computers being used in some of the buildings and provide computer facilities for some new locations.

The replacement of equipment is expected to begin in 1967 both at Huntsville and Slidell.

Univac was one of three firms selected for competitive negotiations on April 28, 1966.

# # # #

Public Affairs Office
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July 8, 1966

IMMEDIATE RELEASE

Release No. 66-151

HUNTSVILLE, Ala. --A new Experiments Office has been created in conjunction with the establishment Wednesday of the Apollo Applications Program Office at the NASA-Marshall Space Flight Center here.

The Experiments Office, a part of MSFC's Research and Development Operations, will be directed by Dr. William G. Johnson who formerly headed the Physics and Astrophysics Branch of the Center's Research Projects Laboratory.

Dr. Johnson, a physicist, in his most recent prior assignment was the manager of the Pegasus Project Office at Marshall. He and his staff were responsible for the three successful giant Pegasus meteoroid detection satellites which are still functioning after more than a year in space.

The new office will be responsible for providing program management and direction for MSFC in the formulation, implementation, review and coordination of its consolidated research and technology program, and will also provide Marshall Center coordination with NASA Headquarters for programmatic and fiscal support of activities.

Dr. Johnson and his staff will also be charged with identification, definition and development of that part of the flight experiments that will be accomplished in the Marshall laboratories.

MORE

NASA announced Wednesday that new program offices had been established at the Marshall Center and at the NASA-Manned Spacecraft Center at Houston, Tex., to handle the increasing level of activity involving Apollo Applications.

Dr. Wernher von Braun, Marshall Center director, named Leland Belew as program manager and Stanley Reinartz as deputy manager at the Huntsville Center.

Dr. Robert R. Gilruth, MSC director, appointed the deputy director of MSC, George M. Low, acting program manager of the Apollo Applications Program Office there in addition to his regular duties. Dr. Gilruth named Robert F. Thompson as assistant program manager. Other key executives are to be named later.

Dr. Johnson came to Huntsville in 1959 from Bellaire, Tex., where he was a research physicist with Texaco, Inc.

Born in Grover, N. C., on Nov. 15, 1921, Dr. Johnson studied at Wake Forest College, the University of California at Berkeley and the University of North Carolina in earning his bachelor, master and doctorate degrees.

He is a member of the American Physical Society, the American Institute of Aeronautics and Astronautics, and Phi Beta Kappa. His major areas of research have been upper atmosphere physics, electron-gas dynamics, cosmic ray physics and acoustics.

# # #

Public Affairs Office
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For Release:

1 p.m. CST, July 8, 1966

Release No. 66-152

Also Released in
Washington

HUNTSVILLE, Ala. --The National Aeronautics and Space Administration has awarded a contract to Federal Electric Corp. of International Telephone and Telegraph, Paramus, N. J., for technical support of the Saturn launch vehicle reliability program at the NASA-Marshall Space Flight Center.

The cost-plus award-fee contract is for one year at an estimated cost of $1,800,000, with a provision for two additional one-year periods. The contract was awarded following competitive negotiations between Federal Electric Corp. and ARINC Research Corp., subsidiary of Aeronautical Radio Corp., Washington, D. C.

The Federal Electric Corp. will perform test program analysis, failure mode and effects analysis, hardware and soft ware failure and trans analysis, and maintainability in human engineering anaylsis for the Marshall Center's Quality and Reliability Assurance Laboratory. The majority of the work will be done in Huntsville, Ala.

The Marshall Center is responsible for developing the Saturn launch vehicles used in this country's manned space flight program.

# # #

Public Affairs Office
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For Release:

8 a.m. CST, July 13, 1966

Release No. 66-156

Also Released in Washington

HUNTSVILLE, Ala. --The National Aeronautics and Space Administration has assigned project management responsibility for the Apollo Telescope Mount for Saturn/Apollo Applications missions to its Marshall Space Flight Center, Huntsville.

The Apollo Telescope Mount (ATM) is presently conceived as a combination of solar-oriented telescopes capable of high resolutions and fine pointing accuracy. It would be attached to the Apollo spacecraft so that an astronaut-observer could contribute manually to the automatic sun-centering system. It would aid in selecting and focusing upon an area of particular interest on the sun.

NASA will use "phased project planning" for ATM, that is, a decision to begin hardware development will await completion of the preliminary design phase and recommendations by Marshall.

A number of scientific investigations have been proposed by solar physicists for ATM missions. Types of instruments to make these investigations include: large X-ray telescopes capable of making high resolution images of the spectra and characteristics of solar flares; ultra violet spectrometers and spectro heliographs which could record the spectrum of small, precisely defined regions of the sun's atmosphere; and coronagraphs designed to study the changes in the solar corona near the sun.

Initial ATM's are planned to be mounted on the spacecraft for earth orbital Saturn/Apollo Applications missions. The first ATM mission may be flown in the next period of maximum solar activity, which will begin in late 1968 and continue for several years.

# # # #

Public Affairs Office
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September 6, 1966

IMMEDIATE RELEASE

Release No. 66-200

HUNTSVILLE, Ala. --Two management officials have been elevated in the NASA-Marshall Space Flight Center's Engine Program Office and a third was given dual responsibilities.

William D. Brown, manager of the Engine Program Office, named Saverio F. Morea as deputy manager. Francis M. Stewart III was appointed manager of the F-1 engine project, replacing Morea. A. J. Burks, Jr., assistant manager of the Engine Program Office, has been assigned additional duties as acting chief of of the Program Control Office.

The changes resulted from several vacancies caused by transfers to the new Saturn/Apollo Applications Office in Industrial Operations.

Morea has guided the development and production aspects of the F-1 engine program since it was assigned to the Marshall Center in 1960. Five F-1's, generating a combined thrust of 7.5 million pounds, power the first stage of the Apollo/Saturn V rocket intended for manned lunar landings. The engines are now undergoing formal flight qualification tests for manned payloads. These tests are being conducted at the Rocket Engine Test Site, Edwards Air Force Base, Calif., under the auspices of the Engine Program Office.

Stewart has been serving for the past four years as Morea's deputy.

MORE

All the new appointees are engineers. Morea was graduated from the City College of the City of New York; Stewart from the Georgia Institute of Technology; and Burks from the University of Texas.

The Engine Program Office is an element of Industrial Operations, headed by Brig. Gen. Edmund F. O'Connor.

In addition to managing the F-1 engine program, it also manages the J-2 engines used on upper stages; H-1 engines used on the Uprated Saturn I booster and the small C-1 engine under development. These engines have thrusts ranging from 100 pounds to 1,500,000 pounds and are to be used singly and in clusters of from two to eight to power a variety of space vehicle stages.

# # # #

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September 6, 1966

IMMEDIATE RELEASE

Release 66-202

HUNTSVILLE, Ala. -- Logistics support ranging from troop supplies in Viet Nam to landing astronauts on the Moon will be discussed Sept. 13-14 by authorities in the many fields during the First Logistics Management Symposium.

About 400 industrialists and government officials are scheduled to attend.

Speakers during the morning Sept. 13 include John C. Goodrum, chief of the Project Logistics Office at MSFC; Dr. Wernher von Braun, who invited the attendees and who heads the NASA center sponsoring the event; and Brig. Gen. E. F. O' Connor, director of MSFC's Industrial Operations.

Dr. George E. Mueller, director of NASA's Office of Manned Space Flight, is scheduled to make a keynote address at 10 a.m. Sept. 13.

He will be followed by Dr. Kurt Debus, director of the Kennedy Space Center, who will cover logistics support for launch site operations.

During a luncheon at the Redstone Arsenal Officer's Club, Brig. Gen. T. T. Paul, director of Plans and Programs, Office of the Army's Chief of Research and Development, will speak on "Logistics Support in Viet Nam."

During the afternoon Sept. 13, the Martin Company's director of logistics, J. L. Carpenter Jr., will speak on "Integration of Logistics Support." He will be followed by Maj. Gen. J. J. Cody Jr., deputy chief of staff for systems, Air Force Systems Command.

MORE

Rear Admiral J. P. Sager, assistant commander for material acquisition, Naval Air Systems Command, will cover the "Technical Philosophy of Support."

Maj. Gen. Sam Phillips, director of NASA's Apollo Program under Dr. Mueller, has scheduled an address entitled "Scoping Support to Program Requirements."

Dr. von Braun will deliver an address in the evening at the Redstone Arsenal Officer's Club.

Robert N. Johns, president-elect of the Society of Logistics Engineers and an official of the Douglas Aircraft Co., will serve as toastmaster.

The second day's activities will start with an address on "Management of Logistics Support" by Sterling B. Smeltzer, a corporate director of North American Aviation.

He will be followed at 8:30 a.m. by Dr. Arthur Rudolph, manager of the Saturn V Program Office at the Marshall Center. Dr. Rudolph, who is directing a government/industry team involved in developing huge rockets for the initial lunar landing, will talk on "The Program Manager's Problems."

"Contracting for Logistics Support" will be covered by Capt. J. L. Howard, director of procurement in the Office of the Secretary of the Navy. G. J. Vecchietti, director of NASA's Procurement Office, and S. C. Hellman, assistant to the director of contracts, Boeing Co., will cover contracting for their respective agencies.

A panel discussion, with J. F. Sutherland of McDonnell Aircraft Corp.; as moderator, is scheduled from 10:30 until 12:20. Subject will be "Measuring Logistics Performance." Those serving on the panel with Sutherland will be

Maj. Gen. J. L. McCoy, commanding general, Air Force Ballistic Systems Division; F. E. Waller, chief of Apollo logistics management for NASA; Admiral H. J. P. Foley Jr., commanding officer, Navy Air Supply Store; and Maj. Gen. John G. Zierdt, commanding general, Army Missile Command.

Following a buffet luncheon at the Redstone Arsenal Officer's Club the second day, Gen. O'Connor will summarize symposium activities. A tour of Marshall Center laboratories and facilities is scheduled during the afternoon.

# # #

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September 20, 1966

IMMEDIATE RELEASE

Release No. 66-212

HUNTSVILLE, Ala. --The NASA-Marshall Space Flight Center has set Saturday, October 15 as "Marshall Space Day 1966." Beginning at 8:30 a. m. the Center will hold "Open House" to all employees, their families and the general public, ending at 3:30 p. m.

The purpose of the event is to give the families of employees and the public an opportunity to see and more fully understand and appreciate the role the Marshall Center and NASA play in the nation's space exploration program.

John Chase, chairman, and Frank Morring, co-chairman, and the steering committee for the open house celebration are making plans for the various exhibits and events of the day.

A highlight of the day will be an awards ceremony at 10 a. m. at Building 4200, MSFC headquarters. Director Wernher von Braun will present awards to a number of MSFC employees.

This is the first open house since 1961. Most of the main buildings will be open with guides present to direct visitors to points of interest.

Visitors will be invited to walk through the Quality and Reliability Assurance Lab and take a close-up look at the mammoth Saturn V booster. The stage is being readied for the second unmanned flight of the rocket designed for the Apollo moon landing mission.

MORE

Another feature will be drive-through tours of the Test Lab where the public will see the giant test stands where engines and stages of the Uprated Saturn I and Saturn V are tested. One of the stands, the dynamic test stand, is the tallest "building" in the state.

Most labs will have displays. Buses will run every few minutes to take visitors to various points of interest. Films will be shown in the auditorium of Building 4200 all day.

Visitors will be permitted to enter any of the major gates to Redstone Arsenal. Signs will be erected to guide drivers to the Marshall Center and to "Open House" parking areas. Cameras will be welcomed.

Cafeterias will be open in several buildings about the center. The operation of mobile canteens and soft drink stands is also planned.

A brochure containing a map and detailed information on various points of interest, eating places, special events and bus service will be handed to each family at its first stop. Literature will be available at each exhibit in the labs.

Displays will also be set up in the Space Orientation Center and in the lobbies of buildings 4200 and 4201.

# # # #

MSFC

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September 29, 1966

IMMEDIATE RELEASE

Release No. 66-224

HUNTSVILLE, Ala. -- A complete space sciences exhibit, tracing the history of rocketry into the future of space exploration, with models of rockets, rocket engines and spacecraft, will be featured at the Alabama State Fair, October 3-8, in Birmingham.

The space exploration display is being sponsored by the National Aeronautics and Space Administration's Marshall Space Flight Center here, in cooperation with other NASA centers.

The Apollo/Saturn exhibit follows the development of space exploration from the ancient firecracker beginning of the Chinese to the reality of lunar exploration and into the reaches of future planetary voyages.

The Marshall Center display will feature models of the Apollo spacecraft that will transport three U.S. astronauts to and from their history-making lunar landing mission, the record-breaking Gemini spacecraft and the Surveyor.

Also included will be models of the lunar module that will land two of the lunar explorers on the moon's surface and a lunar orbiter satellite.

Adding to the exhibit of spacecraft and satellite models will be scaled models of several rocket engines and launch vehicles.

MORE

The Saturn family of launch vehicles, developed by the Marshall Center and associated contractors, will be featured in the display.

The vehicle, the 365-foot tall Apollo/Saturn V, will be the vehicle used in the Apollo lunar landing mission planned for this decade. The first unmanned Saturn V will soar into space next year in preparation for the lunar landing.

# # #

MSFC

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September 29, 1966

IMMEDIATE RELEASE

Release No. 66-225

HUNTSVILLE, Ala. -- The nation's largest rocket will be on view to the general public for the first time October 15 at the National Aeronautics and Space Administration's Marshall Space Flight Center here.

The occasion will be "Marshall Space Day 1966," the first time since 1961 that NASA's largest installation has opened its doors to the public.

A Saturn V flight booster, which has already been static tested and is in a hangar receiving pre-flight checks, will be seen by visitors to MSFC. This is the second flight booster (S-IC-2) in the series, the first one now being at the NASA-Kennedy Space Center launch site.

Both the first and second flight units were assembled at Marshall.

Another Saturn V first stage -- S-IC-3 -- will be on a huge static test stand, being prepared for captive testing. This unit is scheduled to reach MSFC this weekend from the NASA-Michoud Assembly Facility, where it was assembled. Still another, a ground test model which has been fired 15 times, will be on display in another hangar.

The thousands of visitors expected -- Marshall employees, their families and the public -- will be permitted to visit the laboratories, offices and test areas that form the "home" of the Saturn family of heavy space vehicles. Some 10,000 civil service and contractor employees work in these facilities.

MORE

Many of the buildings are being opened to the general public for the first time.

Cameras will be permitted.

John Chase, chairman of the Open House committee, said a high point of the day will be an awards ceremony at MSFC Headquarters at 10 a.m. in which Director Wernher von Braun will honor a number of employees.

Visitors will be invited to drive through the test area where large boosters and engines are captive fired. Most laboratories will have displays, and films of outstanding space events will be shown all day.

# # #

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FOR RELEASE:

November 2, 1966

Release No. 66-264

HUNTSVILLE, Ala. -- The three Pegasus meteoroid technology satellites have served so well that the National Aeronautics and Space Administration has decided to extend their operational lifetimes.

The unmanned satellites, largest known such spacecraft, were launched into near-Earth orbit aboard Saturn I rockets.

Pegasus I, the first, was launched Feb. 16, 1965 by the eighth in a series of 10 successful Saturn I vehicles. Pegasus II followed on May 27 and Pegasus III on July 30. All were set to operate 18 months. And now, even before the final spacecraft has completed its first full term, they have been given a green-light for 12 additional months.

In this second period they will continue to provide data on meteoroids, but the main purpose of this extension is to gather bonus information that will permit engineers to learn more about the durability of spacecraft systems and components over such a long period.

The three satellites will continue to transmit data on thermal measurements and radiation detection as well as meteoroids, but the emphasis will shift. Researchers will concentrate on data that will enable them to determine which materials and systems survive and continue to operate properly in an actual space environment.

MORE

This bonus information will be fed into future programs in which spacecraft will be required to operate for long periods.

Since extensive tests on Pegasus materials and systems were conducted on Earth before the three satellites were launched, researchers can use this data and that acquired from orbit to establish very accurate life and deterioration information.

Two other research angles will be pursued as secondary objectives during the next 12 months.

Researchers expect to get a better definition of meteor showers by searching for fluctuations in the count rate on a yearly basis. Also since the satellites' tumbling has slowed down, some information on the directional distribution of meteoroids may be available.

The satellites at first tumbled so fast that determining the directions from which meteoroids came was difficult.

The researchers will also be able to acquire better measurements of the Earth's heat balance and take a closer look at the fine structure of the radiation belt around Earth.

The satellites were built by Fairchild-Hiller for the Marshall Center, acting for the NASA Office of Advanced Research and Technology. Milton B. Ames, director of Space Vehicle Research and Technology, OART, exercises overall control of the project. Dr. William G. Johnson, now director of the Marshall Center's Experiments Office, was Pegasus project manager at Marshall: Dr. James B. Dozier of the MSFC Research Projects Laboratory is in charge of data analysis. Senior electrical and electronic engineer is Harvell Williams, and senior mechanical engineer was Charles A. Faulkner.

The Marshall Center has had the three satellites under constant surveillance -- 24 hours a day, 365 days a year -- for a total of 23,393 orbits, or a cumulative time of more than four years. The orbits range in altitude from about 310 to 450 miles.

Each of the three satellites average 16 orbits of the Earth per day. This total of 48 orbits daily has given researchers the opportunity to send more than 48 separate commands and accumulate more than 10 hours of real-time evaluation daily.

Each of the satellites has a "wing" of meteoroid detection panels reaching about 96 feet from tip to tip. The 208 panels are actually two-sided capacitors which record meteoroid penetrations from both sides.

Each capacitor is a sheet of aluminum alloy bonded to a trilaminate Mylar sheet, the back of which is coated with vapor-deposited copper. Each pair of panels is separated by a foam plastic core.

The panels expose about 2,000 square feet of meteoroid detection surface on each satellite. Thicknesses of aluminum sheets are varied, the thinnest being 1.5 mils, a second being 8 mils and the heaviest being 16 mils.

A voltage potential is maintained between the aluminum sheet and copper coating of each panel. When a particle penetrates the panel, the impact creates a plasma between the two surfaces. The plasma, before it dissipates, discharges the capacitor panel for a fraction of a second. The capacitor is then recharged almost immediately by the spacecraft's power supply. The momentary discharge is recorded as a "blip" which is translated into digital bits. The bits can then be transmitted to Earth upon command.

Although some detector panels became inoperative after receiving several hits, a total of 1427 events were counted in the telemetry that had been reduced by October 25. Of these counts, 312 took place in the 16 mil panels, 61 in the 8 mil panels, and 1054 in 1.5 mil panels.

It is estimated that there are 1302 holes in the 16 mil panels, 526 holes in the 8 mil panels, and 2221 holes in the 1.5 mil panels, or a grand total of 4049 holes.

The findings have eliminated many of the uncertainties in meteoroid environment and penetration estimates and provided a basis for realistically estimating the amount of meteoroid protection needed for future missions.

Constant surveillance of the three Pegasus satellites is maintained at MSFC's Satellite Control Center in Hangar AF at Kennedy Space Center.

# # #

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December 12, 1966

IMMEDIATE RELEASE

Release No. 66-293

HUNTSVILLE, Ala. --About 75 meteorological specialists are to attend a one-day symposium on recent contributions of dynamical and statistical meteorology to aerospace vehicle problems December 15 at the NASA-Marshall Space Flight Center.

Eight speakers will address the session attended by scientists and engineers representing universities, industries and government agencies.

Speakers and their topics will include:

Prof. Noel E. LaSuer, Florida State University, "A Preliminary Study of Atmospheric Variability from Project Atmospheric Variability Evaluation Data."

Prof. Edwin F. Danielsen, Pennsylvania State University, "Atmospheric Waves of Small Vertical Scale that Affect the Wind and Temperature Profiles."

Dr. Carl W. Kreitzberg, Air Force Cambridge Research Laboratories, "Mesoscale Wind Variations Within an Occlusion."

Dr. Gerald L. Barger, Laboratory for Environmental Data, Environmental Sciences and Services Administration, Washington, D. C., "Improving the Interest Rate in World Data Banks."

Dr. Harold W. Crutcher, Scientific Advisory Staff, National Weather Records Center, "Thunderstorm Persistence at Cape Kennedy, Fla."

Dr. C. Eugene Buell, Kaman Nuclear, "Effect of Atmsopheric Variability on Sound Propagation."

Prof. A. Clifford Cohen, University of Georgia, "On the Probability of Extending an Observation."

MORE

Prof. Thomas A. Gleeson, Florida State University, "Decision Theory for Aerospace Operations."

The Marshall Center's Terrestrial Environment Branch of Aero-Astrodynamics Laboratory is sponsoring the symposium. Orvel E. Smith, chief of the Terrestrial Environment Branch, and S. C. Brown, a member of the branch, will serve as program chairman and assistant chairman.

# # # #

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HOLD FOR RELEASE

January 1, 1967

Release No. 66-297

HUNTSVILLE, Ala. --The NASA-Marshall Space Flight Center ended 1966 on a note of diversification and expansion of interests.

Launch vehicle development, which has long been the major interest here, headed the list of achievements in an eventful and productive year. Three Uprated Saturn I launch vehicles were sent into space, making the Saturn success string 13 straight.

Signs of expansion of interests were evidenced by:

Assignment of the Apollo Telescope Mount project management responsibility to the Marshall Center.

Start of some preliminary work on other missions for the Apollo-Saturn hardware after the first lunar landing.

The Marshall Center's economic impact on the Huntsville community was also important in 1966. The Center's 7, 500 civil service employees earned in excess of $82 million. Some 650 of these government employees are working at other locations throughout the United States.

At the year's end, there were some 4, 085 support contractor employees working at the Center's Redstone Arsenal complex. They earned an estimated $55 million, bringing the direct and indirect payroll for 1966 (combined civil service and contractor) to about $137 million.

MORE

Several thousand workers are employed by contractors in Huntsville in connection with MSFC programs.

Marshall Center officials foresee no significant change in personnel numbers in the coming year.

The budget for fiscal year 1967, which began July 1, is $1.5 billion, a decrease of about $150 million over fiscal year 1966. More than 90 per cent of the total MSFC budget is spent with industry.

The Marshall Center's first Uprated Saturn I lofted an Apollo spacecraft on Feb. 26 from Kennedy Space Center, Fla., to start the successful year. The suborbital flight was to evaluate the Apollo spacecraft's re-entry heat shield. On July 5, the second vehicle sent a stage into orbit to evaluate the behavior of cryogenic liquid hydrogen during weightlessness. The third unmanned Apollo Saturn test on Aug. 25 sent the spacecraft on a suborbital flight of some 18,000 miles, into the Pacific.

A milestone in the Saturn V program was reached in 1966. A Saturn V vehicle and Apollo spacecraft were erected for the first time at KSC. The "facilities checkout vehicle" was used to try out launch complex ground support equipment.

Another three-stage Saturn V vehicle was also assembled in a test stand at the Marshall Center. Called the dynamic test vehicle, this 365-foot tall rocket is being put through "shake" tests to determine its bending and vibration characteristics. Most of the elements of the first flight Saturn V are at the launch complex.

In the Apollo Applications area, the Marshall Center's two main projects are the Apollo Telescope Mount and the Orbital Workshop. The ATM, a manned solar astronomical mission to fly during the period of maximum solar activity that begins in 1968, will carry astronomical instruments. MSFC will design and build the telescope mounting frame and astronomy specialists as principal investigators will provide the instruments.

The Orbital Workshop calls for a "spent" Saturn upper stage to be used as an early space workshop. Astronauts will live and work for up to 30 days or more in this space laboratory.

Marshall Center can look forward to the launch early in 1967 of the fourth Apollo Saturn vehicle, which is to be manned and the unmanned Saturn V launch vehicle.

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January 4, 1967

IMMEDIATE RELEASE

Release No. 67-1

HUNTSVILLE, Ala. -- The year 1966 brought a record number of visitors to the NASA-Marshall Space Flight Center. Nearly a quarter-million people, from throughout the United States and 65 foreign countries, toured or met at the Alabama space center.

The visitors totaled 246,838 people, approximately 20,000 of whom came in one day, during the Marshall Center's special open house celebration.

Some 212,389 visitors toured the MSFC Space Orientation Center, a museum for a close look at many aspects of the U.S. space program. The other 14,449 visitors attended conferences and meetings, were given extensive tours or were conducting business at MSFC.

There were 744 foreign visitors during the year, representing 65 countries, from Canada and Mexico to Afghanistan and Zambia. The largest number (203) were from West Germany.

The Marshall Center's subordinate units, the Michoud Assembly Facility in New Orleans and the Mississippi Test Facility in Hancock County, Miss., also had record numbers of visitors. Michoud hosted 33,939 people, including more than 18,000 at an open house, and MTF provided tours for 13,921 people during the year.

Visitors at the Marshall Center during 1966 represented an increase of almost 33,000 over 1965's total of 213,885.

# # #

MSFC

W/2

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January 20, 1967

IMMEDIATE RELEASE

Release No. 67-12

Also Released in Washington D. C.

HUNTSVILLE, Ala. -- The NASA-Marshall Space Flight Center has awarded a $100,000 contract to Bell Aerosystems, Buffalo, N.Y., to flight test a one man flying vehicle which the company has developed.

Bell Aerosystems is to study how the system -- sometimes called a "pogo stick" -- reacts in a variety of situations. The vehicle will be tested in a one-sixth gravity facility at the Langley Research Center, Hampton, Va. This is a six month study.

In this flying system, the pilot stands on a cross bar. The propulsion system, which uses hydrogen peroxide as fuel, is controlled by handle bars.

Marshall Center's Advanced Systems Office is administering the contract.

Bell Aerosystems has been exploring the low thrust single pilot systems for some time.

# # #

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January 31, 1967

IMMEDIATE RELEASE

Release No. 67-21

HUNTSVILLE, Ala. -- A contract for $997,000 has been signed between the NASA-Marshall Space Flight Center and the Diamond Manufacturing Co., of Savannah, Ga., calling for modifications to an ocean-going barge to be used for hauling large rocket stages.

The work, expected to take about five months, is to be done in a Savannah dry dock.

The Orion, one of several MSFC barges, is a 260 foot long vessel with a cargo space 80 feet long and 30 feet high. Under the contract, this space will be expanded to 200 feet in length and over 45 feet high. This will allow the 138 foot long first stage of the Saturn V rocket to be transported as well as the middle stage, which is the same diameter--33 feet--but not as long.

Until lately, the Orion has been used on the West Coast for transporting smaller stages to and from manufacturing and test sites there.

After the modification, it will be used to support assembly and test sites on the Gulf Coast and for trips to and from the Kennedy Space Center launch site.

MSFC officials said the Diamond Co., will also check the hull of the vessel while it is in dry dock for modifications and make any other repairs necessary.

A total of five firms submitted proposals for the work. The Diamond Co., was the low bidder, contract officials said.

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FOR RELEASE:

Wednesday, February 15, 1967

Release No. 67-31

HUNTSVILLE, Ala. -- A two-day National Aeronautics and Space Administration Emergency Preparedness Coordination Meeting began this morning at the NASA-Marshall Space Flight Center here with about 90 officials attending the sessions.

The attendees, representing NASA, the Army and the Office of Emergency Plannine (OEP) in Washington, D. C. were to be welcomed by Dr. Wernher von Braun, Marshall Center director.

Chauncey W. Huth, assistant to the deputy director, administrative, MSFC, was to introduce host personnel.

John E. Cosgrove, assistant director of OEP, and Franklin M. Aaronson, director of the Economic Affairs Office of OEP, was to discuss OEP policy guidance and coordination and functions of the Office of Defense Readiness. The OEP is a part of the Executive Office of the President.

Also scheduled for the morning session were discussions on: OEP regional role and functions, Earl E. Mader, regional director, Region 3, OEP; Office of Civil Defense regional role and functions, Dial F. Sweeney, regional director, Region 3, OCD; and MSFC emergency program, Howard A. Slayden, Marshall Center emergency planner.

MORE

After lunch and a tour of the MSFC Emergency Operating Center, NASA emergency preparedness program, emergency readiness requirements and procedures were to be discussed by Donald H. Lichty, NASA Emergency Preparedness Officer.

The Army emergency preparedness program is to be outlined by H. B. Carpenter, Redstone Arsenal emergency preparedness coordinator, opening the afternoon session. Lichty will then conduct a series of discussions to close the first day of sessions.

Paul A. Price, chief, Communications and Frequency Management, NASA, will open the second day with a presentation on NASA participation in national and international communications systems.

A. Lee Canfield, chief of the Readiness Development Division, National Resources Evaluation Center, will orient attendees on NREC capabilities and agency support arrangements. Harry J. Mallon, NASA representative to NREC, will outline damage assessment procedures.

During the afternoon session, Lichty will discuss relocation and various aspects of civil defense readiness.

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February 28, 1967

IMMEDIATE RELEASE

Release No. 67-37

HUNTSVILLE, Ala. -- The Working Group on Extraterrestrial Resources (WGER) will hold its annual meeting at Huntsville this week and tour the NASA-Marshall Space Flight Center.

Thirty-five scientists and engineers formed the informal group in 1967. The membership has now expanded to about 200, and more than 100 are expected to attend the coming fifth annual meeting, March 1-3 at the Carriage Inn in Huntsville.

The purpose of the group is to study the moon and other extraterrestrial bodies with a view toward using the natural resources of the bodies to support extended space exploration. WGER membership is divided into four areas of interest: environment and resources, mining and processing, basing and transportation and biotechnology.

Four MSFC employees will present papers at the meeting this week.

Stanley Fields and H. M. Weathers, Research Projects Laboratory, will discuss lunar mining. Haydon Grubbs of the Propulsion and Vehicle Engineering Laboratory will give a paper on a simulated two-week manned lunar mission, and David Paul III of the Advanced Systems Office will talk about lunar mission modes and systems analysis.

Dr. Wernher von Braun, Marshall Center director, is scheduled to address conference members Thursday night.

Members of the WGER represent NASA, the Air Force, the Army Corps of Engineers, the Navy, the Bureau of Mines, the U. S. Geological Survey, several universities and industrial firms.

The program will include the presentation of 20 papers, an outline for a 1968 meeting, discussion of Gemini and Lunar Orbiter photography and sub-group meetings.

The final day of the gathering will be devoted to a tour of the Marshall Center's laboratories.

The chairman of the group's steering committee is Dr. Ernst A. Steinhoff of the Air Force Missile Development Center, Holloman AFB, N. M.

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March 3, 1967

IMMEDIATE RELEASE

Release No. 67-45

HUNTSVILLE, Ala. -- Secretary of Agriculture Orville L. Freeman and six other U.S. government officials from Washington will visit the NASA-Marshall Space Flight Center Tuesday, March 7, as part of a tour of NASA's manned space flight centers.

Arriving late Monday from the Manned Spacecraft Center, Houston, the visitors will spend a full day Tuesday touring the Marshall Center before leaving Tuesday afternoon for the Kennedy Space Center, Fla.

The visitors are making the trip at the request of NASA Administrator James E. Webb, who has extended invitations to cabinet members and representatives of other government agencies to visit NASA centers and become more familiar with the activities of the space agency.

Similar visits have been made to MSFC by U.S. Ambassador to Russia Llewellyn E. Thompson and Elmer B. Staats, U.S. Comptroller General.

With Secretary Freeman will be Robert W. Akers, deputy director of the U.S. Information Agency; George S. Springsteen, deputy assistant secretary of state for European affairs, U.S. State Department; Dr. Arch B. Park, assistant to the administrator, Agricultural Research Services; General Charles P. Cabell (retired) and Ambassador Joseph C. Satterthwaite (retired), consultants to NASA Administrator Webb; and Arnold Frutkin, assistant administrator, NASA Office of International Affairs.

At MSFC the group will tour several major laboratories, including Manufacturing Engineering, Propulsion and Vehicle Engineering, and Test. They will be given briefings on MSFC's background, the Uprated Saturn I and Saturn V launch vehicles, and such elements of the Apollo Applications Program as the S-IVB workshop and the apollo telescope mount.

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March 27, 1967

IMMEDIATE RELEASE

Release No. 67-62

HUNTSVILLE, Ala. -- William Teir, deputy manager, operations, of the NASA-Marshall Space Flight Center's Saturn I/IB Program Office, was named manager in an announcement by Harry H. Gorman, acting for MSFC Director Wernher von Braun.

At the same time, William F. LaHatte was designated Teir's deputy. LaHatte has been deputy manager, management.

Teir assumed his new duties when Lee B. James was reassigned to the National Aeronautics and Space Administration headquarters as deputy director, Apollo Program, Office of Manned Space Flight.

Both Teir and LaHatte are experienced rocket engineers and served immediately under James since 1965.

Teir, a native of Rainier, Oregon, was graduated from Oregon State College where he received a bachelor's degree in mechanical engineering; the University of Southern California, where he received a master of science degree in aeronautics and guided missiles, and the Army War College at Carlisle Barracks, Pa.

He has more than 15 years' experience in the fields of guided missile research, development, management and operations.

MORE

He retired from the Army last April as a colonel with 26 years military service.

Mrs. Teir is the former Florence Harrell of Waco, Texas. The couple has one child, William V., 8.

LaHatte, a native of Vicksburg, Miss., received a bachelor of science degree in electrical engineering from Mississippi State College and a master of science degree in electrical engineering from the Johns Hopkins University in Baltimore. He was also graduated from the Army War College.

He has held a number of Army research and development assignments during more than 20 years of active military service. He also recently retired as a colonel.

LaHatte started in the Army rocket research and development field in 1949 at Fort Bliss, Texas.

Mrs. LaHatte is the former LaVonne Newsom of El Paso, Texas. The couple has a son, Robert Earle, 8.

The Saturn I/IB Office, which has responsibility for the Uprated Saturn I, is an element of MSFC's Industrial Operations, headed by Brig. Gen. Edmund F. O'Connor.

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April 12, 1967

IMMEDIATE RELEASE

Release No. 67-80

HUNTSVILLE, Ala. -- The largest single cash award ever made for an employee suggestion at the NASA-Marshall Space Flight Center here has been presented by Dr. Wernher von Braun, MSFC director.

Receiving $1,625 was Henry Ricketts of Route 4, Box 387, Huntsville, an employee in the Marshall Center's Quality and Reliability Assurance Laboratory.

The award grew out of a relatively simple idea which, when put into effect, saved the government more than half a million dollars the first year.

Rickets developed and recommended for general use a new method for removing the coating from printed circuit boards -- flat sheets of hard, compressed material on which the "wiring" for an electrical circuit is "printed" by depositing or embedding lines of copper or other conductive metal.

These boards, common in transistor radios and some television sets, are used extensively in electronic equipment needed for space vehicles and ground support equipment.

The Marshall Center and contractors had no established procedure for removing the coating so that the boards could be reused. The usual method was heating with soldering irons and cutting and scraping with hand instruments. This took about 15 minutes per board and frequently resulted in damage to the boards, making them useless.

Ricketts suggested that a 1/4 inch nylon rod be sharpened to a point and be used in a draftsman's electric eraser. The rapidly turning rod produced enough heat to "erase" the coating.

Time required for each board was reduced to about two minutes with no damaged boards resulting. First year savings were estimated at $571,750.

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April 14, 1967

IMMEDIATE RELEASE

Release No. 67-81

HUNTSVILLE, Ala. -- Nine firms have been awarded contract extensions totaling more than $57 million for providing engineering, fabrication, and institutional support services to six laboratories and three offices at the NASA-Marshall Space Flight Center.

The Marshall Center chose to exercise its options in March to continue the support contracts awarded in 1965. These awards are the second one-year renewals exercised under the original contracts.

Support contractors, the cost of the one-year effort and the laboratory or office supported follow:

Sperry Rand Corp., Space Support Division, Huntsville, Ala., $12,695,727, Astrionics Laboratory.

Vitro Services Division, Vitro Corp., Ft. Walton Beach, Fla., $5,344,159, Test Laboratory.

Brown Engineering Co., Huntsville, $12,350,140, Propulsion and Vehicle Engineering Laboratory.

Spaco, Inc., Huntsville, $5,971,638, Quality and Reliability Assurance Laboratory.

MORE

Northrop Corp., Northrop Space Laboratories, Huntsville, $3,905,000, Aero-Astrodynamics Laboratory.

Hayes International Crop., Birmingham, Ala., $4,969,277, Manufacturing Engineering Laboratory.

Management Services Inc., Oak Ridge, Tenn., $5,560,941, Technical Services Office

Rust Engineering Co., Birmingham, Ala., $599,090, Facilities and Design Office.

RCA Service Co., Camden, N. J., $5,749,907, Management Services Office.

The awards are cost plus incentive-award fee contracts. The original six laboratory engineering support contracts and one office support contract had provisions for four additional one-year renewals. Two contracts for institutional support services had provisions for two consecutive one-year extensions.

The work is primarily in support of the Saturn launch vehicle program. Most of the work under the contracts will be performed on the premises of the Marshall Center. However, some will be performed in contractor facilities at Huntsville and other locations.

# # #

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May 10, 1967

IMMEDIATE RELEASE

Release No. 67-107

HUNTSVILLE, Ala. -- A joint agreement between the National Aeronautics and Space Administration and the Department of the Air Force calls for the Air Force to purchase most of the propellants and pressurants used in connection with static testing by the NASA-Marshall Space Flight Center in Huntsville, effective July 1.

The same agreement also calls for the Air Force to buy the same materials for MSFC's Mississippi Test Facility -- also a static test site. The MTF purchases of helium and RP-1 (kerosene) start July 1. Liquid oxygen and liquid nitrogen purchases for MTF start March 1, 1968.

The Marshall Center will continue to be the single manager of all purchases of liquid hydrogen for use in the eastern U.S., for all NASA and Air Force agencies.

The new agreement says this change will result in both economy and efficiency of operation for the government because it will reduce overlapping supply and distribution patterns caused by simultaneous NASA and Air Force supply contracts with the same commercial sources.

MORE

The Air Force already provides the propellant purchase support to the NASA-Kennedy Space Center and to various MSFC and contractor test facilities on the West Coast.

Following the proposal to allow Air Force purchasing, a NASA task team with MSFC representation studied the idea and agreed that the move would be advantageous to the government.

About $8 million worth of propellants will be used by MSFC-Huntsville and MSFC-MTF during fiscal year 1967.

Among the propellants and pressurants involved are liquid oxygen, liquid nitrogen, gaseous helium in bulk quantities and RP-1.

The move involves no manpower changes at the NASA-Marshall Space Flight Center.

The responsible Air Force element is the Air Force Directorate of Propellants and Aerospace Fuels at San Antonio, Texas, headed by Col. C. G. Shead.

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June 2, 1967

IMMEDIATE RELEASE

Release No. 67-117

HUNTSVILLE, Ala. -- The NASA-Marshall Space Flight Center has renewed a pact with the A. L. Mechling Barge Lines, Inc., of Joliett, Ill., calling for towing, crewing and maintenance of government barges through April 30, 1968.

Tow services extend from the Marshall Center dock on the Tennessee River here, along the Ohio and Mississippi Rivers, via New Orleans, and in the Gulf of Mexico and along Florida's Atlantic coast to the NASA-Kennedy Space Center.

Space rocket stages and other components ply these waterways on MSFC barges.

Amount of the contract is $854,020.

Mechling will also perform some of the barge work on the Pearl River near MSFC's Mississippi Test Facility where large booster and second stages are static fired.

The four main barges requiring tow servi es are the Poseidon, Promise, Orion and Palaemon. About 22 trips are projected for next year to various test sites and the launch pad.

MORE

Mechling made it's first run for the Marshall Center in 1961. Since that time, the firm has powered East Coast shipments of the Uprated Saturn I booster, and the first and second stages of the Saturn V.

# # #

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June 7, 1967

IMMEDIATE RELEASE

Release No. 67-124

HUNTSVILLE, Ala. -- Two separate but related summer college faculty programs will be held simultaneously at the NASA-Marshall Space Flight Center here from June 12 to August 18.

Both programs are being administered jointly by Auburn University, the University of Alabama and the Marshall Center.

The University of Alabama will conduct a summer institute in space related science, one of six such institutes being presented by the National Aeronautics and Space Administration and the American Society for Engineering Education.

The other program is the 1967 NASA Engineering Systems Design Summer Faculty Fellowship program, which Auburn is leading.

Co-directors of the summer institute are Ray Hollub of the University of Alabama and Dr. R. R. Head of the Marshall Center.

Co-directors of the Summer Faculty Fellowship program are Dr. R. I. Vachon of Auburn and W. Y. Jordan of MSFC. Prof. A. M. Leppert and Dr. G. W. Breland of Auburn and Dr. R. M. McDonald of the University of Tulsa will serve on the supervisory staff.

MORE

The 10-week institute is a program of cooperative research and study at the Marshall Center for outstanding engineering and science educators. The program's objective is to further the professional knowledge of the teachers and to stimulate an exchange of ideas between the participants and NASA.

About 80 per cent of the participants' time will be devoted to research and the remainder to seminar sessions and tours. The series will be conducted as an integral part of the summer institute program.

About 40 educators representing some 25 different colleges and universities coast to coast will participate in the program at MSFC. The participants, selected from a large group of applicants, were awarded fellowships for the period.

During the program, the participants will be Faculty Fellows of the University of Alabama. They will work on various projects in the several MSFC laboratories.

Similar programs are being conducted by the University of Houston and NASA-Manned Spacecraft Center; Maryland and Catholic University of America and the NASA-Goddard Space Flight Center; Stanford University and the NASA-Ames Research Center; the Virginia Associated Research Center of the University of Virginia, Virginia Polytechnic Institute and the NASA-Langley Research Center; and the Case Institute of Technology and the NASA-Lewis Research Center.

The principal objective of the Summer Faculty Fellowship program is to allow the participants to develop concepts and techniques which will enable them to organize multi-disciplinary engineering systems design courses at their home institutions.

The program is also designed to promote the establishment of communication between engineers and scientists in different specialties, help illustrate the importance of such communication and introduce the students to the potentialities and challenges of the U. S. space program.

NASA's awareness of the need to provide academic instruction and experience in the area of systems engineering, which involves approaching a given design problem in its entirety instead of from the narrow viewpoint of a single discipline, resulted in establishment of the summer program.

The program will involve the participation of two or three engineering faculty members, constituting design teams, from several universitites throughout the United States.

About 20 Faculty Fellows from the major engineering disciplines will attend. Participants were selected on the basis of ability to contribute to the programs of their institutions and receptiveness to the concept of developing systems engineering programs there.

The participants in this program will undertake the conceptual design of a complete engineering system for a planetary reconnaissance vehicle. They will be responsible for selecting or designing the booster, the propulsion system, communications, guidance and control, power supply and trajectory and mission.

The staff and facilities of the Marshall Center will be available for support of program activities. Seminars on topics directly related to the system design will be conducted with appropriate speakers selected from NASA, industry and research laboratories.

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June 27, 1967

IMMEDIATE RELEASE

Release No. 67-135

HUNTSVILLE, Ala. -- A one-man flying device is being tested for the National Aeronautics and Space Administration simulating how the device -- called a "Pogo" vehicle -- could operate in the relatively slight gravitational environment of the moon.

The "Pogo" vehicle was built by the Bell Aerosystems Co., Niagara Falls, N.Y., and is being tested for the NASA-Marshall Space Flight Center at NASA-Langley Research Center, Hampton, Va.

The device is being subjected to approximately 30 simulated flights. Each flight lasts about one minute as the "pogo" is suspended in a constant tension device, developed under the guidance of the Marshall Center for use in the Langley Lunar Landing Research Facility. The program is being carried out for the Office of Advanced Research and Technology.

The "pogo" is so named because of its physical resemblance to a pogo stick. The device does not, however, bounce up and down in the same way as its namesake.

The primary object of the test series is to determine how the control features of the vehicle may differ in the gravitational pull of the moon as compared with that of the earth. The lunar environment has a gravitational pull only one-sixth that of earth, and the Langley facility is designed to

MORE

simulate this environment.

The tests are divided into three phases, the first testing the vehicle with the operator in ordinary dress to learn how it can be controlled by a man wearing no space equipment. The tests become progressively more complex as a man operates the device in a pressurized "soft" space-suit, and then in a pressurized "hard" suit. The space suits used for the tests were developed and supplied by the Manned Spacecraft Center.

The Pogo's propulsion system used hydrogen peroxide and has been modified so it has one-sixth the thrust of its terrestrial configuration. The maximum flight time under normal earth conditions is 20 seconds, but engineers have tripled the time to 60 seconds for these tests.

The vehicle may prove to be a practical auxiliary vehicle for lunar surface travel. It is lightweight and can move rapidly.

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July 24, 1967

IMMEDIATE RELEASE

Release No. 67-151

HUNTSVILLE, Ala. -- A novel snake-like device for locating and handling tools, equipment and men in space is being developed by the NASA-Marshall Space Flight Center.

The device, called a serpentuator, is being advanced here as a tool for space manufacturing and assembly operations.

Astro Space Labs, Inc., Huntsville, recently received a $93,136 contract for further development work on the system and to assemble a serpentuator for tests. The Huntsville firm worked on the earlier phases of the tooling concept under a $53,188 contract.

The serpentine actuator chain concept is an invention of Hans Wuenscher of the Marshall Center's Manufacturing Engineering Laboratory. Designed for use in zero gravity space environments, the serpentuator is made up of links connected by powered hinges. The long devices cannot be used on earth because they are not self supporting under gravity. One end of the linkage system is connected to the space station while the other end is free to move about.

MORE

A feature of the concept is the dual controls. The device may be remotely controlled or steered from either end of the chain.

Space applications could include use as manipulators, and as stabilization and rendezvous systems. Serpentuators several hundred feet or yards long or even longer could be used as "space cherrypickers" to move tools and equipment during assembly, repair or manufacture in space. Such a device could even be used to throw things in space.

Wuenscher said there are two basic versions of the serpentuator being studied. A small five link device, which can be folded up like a yardstick, is being developed for use inside a space station. Power for the small device is either a hand pump attached to each end or batteries. The hinges are moved by hydraulic fluid.

This small intra-vehicular serpentuator, or "inserp," is practical for use up to 20 feet around its temporary attachement point. Both ends have a control mechanism and a clamp. The clamp also can be released from the opposite end so that the serpentuator movement "would be comparable to that of an inchworm and the astronaut would always be mechanically connected to the space station structure," Wuenscher said. An engineering model will be tested in a water tank at Marshall under neutral buoyancy condition.

MORE

The second version, called an "exserp," could be used for activities outside the space station. Twelve hinged links which can be deflected only to a maximum of 30 degrees would enable the serpentuator to be closed up to a 12-sided polygon. The eight foot long links would give the device a total length of almost 100 feet. Hinges are powered by electric motors. Wuenscher said there is no reason why the links could not be made much longer in order to extend the range to several hundred feet. A five-link, 15-foot long engineering model is presently being tested at Marshall. The zero gravity condition is simulated by support stands riding on air cushions.

Controlled from both ends by a stick-type handle, the larger serpentuator is attached permanently to the space station by a base gimbal to allow the tip to reach any point within a spherical "motion volume" with a 100 foot radius.

Wuenscher sees use of both the "inserp" and the "exserp" for complete coverage and accessibility of the area inside and outside a space station. The smaller device, attached to the end of the "exserp," will provide access even into the most crowded structural areas of a space station from the outside.

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July 25, 1967

IMMEDIATE RELEASE

Release No. 67-154

HUNTSVILLE, Ala. -- A conference on organizational communication will be held at the NASA-Marshall Space Flight Center here August 9-11.

Participants in the conference will include representatives of the National Aeronautics and Space Administration Headquarters and field centers and Marshall Center prime and local support contractors. Observers representing the U.S. Civil Service Commission and selected universities will also attend.

The purposes of the conference include: review the state-of-the-art in organizational communication in government and industry; review current academic pursuits in this field; exchange experiences and knowledge among NASA personnel; and identify areas of common interest with MSFC contractors.

The conference chairman is Walter Wiesman, internal communications coordinator at MSFC, and the conference coordinator is Dr. Phillip K. Thompkins of Wayne State University.

Registration will begin at 11 a.m. August 8 at the Sheraton Motor Inn, conference headquarters. Attendees will leave there by bus at 12:30 p.m. for a briefing and tour of the Marshall Center.

MORE

Attendees will go by bus August 9 to Morris Auditorium at MSFC for the keynote address by Brig. Gen. Edmund F. O'Connor, director of Industrial Operations at the Marshall Center.

Dr. Thompkins will address the group on "Organization Communication-Historical Review and Current Research Efforts." James R. Douglas of The Boeing Co. will present "A Large Industry Looks at Communication," and Dr. Thorrel B. Fest of the University of Colorado will give "An Introduction to the National Center of Communication Arts and Sciences."

Afternoon sessions include "A Government Agency Looks at Communications," presented by Wiesman; review of MSFC-contractor common interest areas; incentive and fee contracts; quality, reliability and safety; configuration management; data management; cost reduction; and conflict of interest.

August 10 will be devoted to work sessions for all NASA representatives, prime contractor representatives and local support contractor representatives. These sessions will be devoted mainly to exploring MSFC-contractor common interest areas.

The morning of August 11 will be devoted to the basic aspects of organizational communication information exchanges and to a review and evaluation of the conference.

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July 27, 1967

IMMEDIATE RELEASE

Release No. 67-157

HUNTSVILLE, Ala. -- Sixteen White House Fellows are visiting the NASA-Marshall Space Flight Center here today for briefings and an inspection tour of facilities.

The White House Fellowships program was launched nearly two years ago by President Johnson. Under the program, outstanding young men spend a year participating in the everyday operations of government at top levels. They can then return to their communities and share a clearer understanding of government.

The group's schedule includes a welcome and briefing on center management presented by Harry H. Gorman, MSFC deputy director, administrative, followed by a presentation on program management by E. F. O'Connor, director of MSFC's Industrial Operations.

Dr. Wernher von Braun, Marshall Center director, will address the group on the subject, "Why Space?" at the luncheon. He will also conduct summary discussions at a session shortly before the group leaves for the NASA-Kennedy Space Center late in the afternoon.

During the early afternoon, the White House Fellows will receive a briefing by L. F. Belew on the Apollo Applications Program and another on advanced systems by F. L. Williams.

MORE

The group will visit the Manufacturing Engineering Laboratory to inspect the Orbital Workshop, Apollo Telescope Mount and an Astrionics display.

White House Fellows visiting include: Dr. Michael W. Kirst, assistant director, President's Commission on White House Fellows: William S. Abbott, Department of Agriculture; John Bassett, Jr., Department of Justice; Miss Jane P. Cahill, Department of Housing and Urban Development; Richard D. Copaken, Department of Transportation; Thomas E. Cronin, William P. Graham and Sanford D. Greenberg, White House; Samuel H. Howard, United Nations; Thomas O. Jones, Department of Health, Education and Welfare; F. Pierce Linaweaver, Jr., Department of the Interior; James P. Maloney, Jr., Department of Commerce; John W. McCarter, Jr., Bureau of the Budget; J. Timothy McGinley, Department of Labor; Lt. Col. John S. Pustay, State Department; and Charles D. Ravenel, Department of the Treasury.

# # #

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August 3, 1967

IMMEDIATE RELEASE

Release No. 67-161

HUNTSVILLE, Ala. -- A major ground test program of the Apollo/Saturn V has been successfully completed at the NASA-Marshall Space Flight Center.

In effect, it signals the green light for the launch of the first Apollo/Saturn V later this year as far as the dynamics and structures are concerned.

Ralph Robertson, of the Saturn V Test Office and project manager during the 11 month test, said the dynamic test program was conducted by the Boeing Co., under the direction of Marshall Center engineers, who provided test criteria and monitored the effort.

He said initial dynamic tests started with the first stage of the Saturn V. Subsequent tests included the second and third stages, instrument unit and the Apollo spacecraft.

Several slight modifications were made to the space vehicle as a result of the dynamics program.

Tests included the bending and vibration characteristics of the complete vehicle. These tests were carried out in a 400 foot high tower in the Center's Test Laboratory.

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August 9, 1967

IMMEDIATE RELEASE

Release No. 67-166

HUNTSVILLE, Ala. -- Twenty-six Marshall Space Flight Center employees will be taking active parts in the Guidance, Control and Flight Dynamics Conference at the Sheraton Motor Inn here Aug. 14-16.

The three-day gathering of nationally-recognized guidance and control specialists is being sponsored by the Alabama Chapter of the American Institute of Aeronautics and Astronautics.

The agenda lists such topics as attitude control; orbit and attitude determination; analytical dynamics; control of flexible boosters; aerodynamics; mission analysis and guidance.

Dr. Walter Haeussermann, Astrionics Laboratory director, and Helmut Horn of the Aero-Astrodynamics Laboratory will chair two of the 19 sessions.

Presenting papers at the meeting will be William Chubb, David Schultz and Sherman Seltzer; F. B. Moore and J. B. White; Glen Ritter; Hans Kennel; Florent Daniel, George Doane and Ralph Kissel; Michael Borelli and Stanley Carroll; Charles Wyman; and Harold Scofield, all of the Astrionics Laboratory.

Representing the Aero-Astrodynamics Laboratory will be Jonathan Haussler, James Papadopoulos, Archie Young, Volis Buckelew, Doris Chandler and Helmut Horn.

MORE

Robert Holland and Matthew Barkley, Space Sciences Laboratory will also present a paper.

Fred Digesu, Astrionics Laboratory, is administrative chairman of the meeting; William Ferguson, Apollo Applications Program Office, is in charge of security, George Detko, Advanced Systems Office, has transportation responsibility.

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August 10, 1967

IMMEDIATE RELEASE

Release No. 67-168

HUNTSVILLE, Ala. -- The National Aeronautics and Space Administration has converted the systems integration portion of the Chrysler Corporation's Uprated Saturn I contract to a cost-plus-incentive-fee agreement.

With this $22 million conversion, the total value of the systems integration segment of Chrysler's six-part Uprated Saturn I contract is $35.5 million. Under this arrangement Chrysler's fee is judged according to its performance, quality and timeliness in accomplishing its work.

Chrysler's major responsibilities also include flight technology, structural, electrical, guidance and control and propulsion systems engineering. They will also provide systems analysis, technical and documentation services.

Chrysler personnel will be performing their assignments at NASA's Marshall Space Flight Center, Huntsville, Ala. and the Michoud Assembly Facility, New Orleans, La.

This contract is effective through April, 1969.

# # #

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August 15, 1967

IMMEDIATE RELEASE

Release No. 67-170

HUNTSVILLE, Ala. -- The return of a space agency lawyer to school this fall to study space law and two new position changes in the Center's legal office have been announced by the NASA-Marshall Space Flight Center.

W. E. Guilian, chief counsel for the Marshall Center, is the first National Aeronautics and Space Administration employee to study for an advanced degree in space law.

He will become a graduate student at the International Institute of Air and Space Law at the McGill University School of Law, Montreal, Quebec, Canada, for the 1967-68 adacemic year.

New appointments in the Center's legal office include the selection of Edwin R. Ling as deputy chief counsel for the Marshall Center. During Guilian's absence Ling, former counsel at the MSFC-Mississippi Test Facility, will be acting chief counsel.

New MTF counsel is Robert P. Johnson, a retired Army colonel.

Guilian, a native of Birmingham, Ala., has been MSFC chief counsel since the Center was established in 1960. He formerly worked nine years for the U.S. Atomic Energy Commission. He received his law degree from the University of Tennessee.

McGill University is pioneering in the study of space law. The institute is the only school known to be offering an advanced degree in the field. At McGill, Guilian will join graduate students from throughout the world in seminars and research in the space law field. He will also take selected courses in law, economics, and other fields. Guilian will leave the Marshall Center about Sept. 1 and will return next June.

Ling is a 1954 graduate of Grinnell College and holds a law degree from New York University School of Law. A native of Wichita, Kansas, the 35-year-old Ling was formerly counsel at the Michoud Assembly Facility.

Johnson recently retired after serving 30 years in the Army. A 1941 graduate of West Point, he received his law degree from the University of Virginia and was admitted to the Virginia bar in 1949.

# # #

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September 1, 1967

IMMEDIATE RELEASE

Release No. 67-181

HUNTSVILLE, Ala. -- The NASA-Marshall Space Flight Center is shipping a manned orbital workshop mockup this weekend to the McDonnell Douglas Space Systems Center, Huntington Beach, Calif., for design modifications.

The mockup will be loaded aboard the Super Guppy aircraft today (Sept. 1) and is scheduled to arrive at Los Alamitos Air Station on Sunday.

Built by McDonnell Douglas, the Saturn S-IVB stage model is being returned so the manufacturer may change its interior to reflect the most recent design changes. When the changes are made the mockup will represent the Saturn S-IVB stage as it is to be used in the Apollo Applications program as a manned space laboratory. The mockup is some 50 feet long and 21.5 feet in diameter.

Modifications scheduled to be made include the relocation of a floor which will separate the two sections of the stage's liquid hydrogen tank, addition of a ceiling and other fixtures, and moving some experiment locations. The changes resulted from a recent design review conducted at the Marshall Center.

MORE

The mockup will be returned to the Marshall Center in about two months. It is used here as an engineering tool in designing structures, equipment and experiments for the initial mission of 28 days.

# # #

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FOR RELEASE:

September 3, 1967

Release No. 67-182

HUNTSVILLE, Ala. -- A large ocean-going barge, recently modified to carry the largest space boosters, goes back into service today with the NASA-Marshall Space Flight Center.

The 260-foot long vessel, called the Orion, is scheduled to depart a Savannah, Ga., dock today for a trip around Florida to New Orleans. It is to stop in West Palm Beach, Fla., briefly to pick up a liquid nitrogen storage tank for delivery to the NASA-Mississippi Test Facility.

Orion is one of seven vessels used to transport large rocket stages and components. The cargo area, now 200 feet long and 45 feet high, can carry the first and second stages of the huge Saturn V launch vehicle. These stages are too large for conventional road, rail or air transport.

John Goodrum, chief of the Project Logistics Office at MSFC, said the Orion will be used to transport stages from the manufacturing site at the Michoud Assembly Facility to a nearby acceptance test site and later to the Kennedy Space Center, Fla., launch site.

The barge may also supplement the USNS Point Barrow, an ocean-going ship used to transport second stages from the West Coast manufacturing site to the Mississippi Test Facility.

Prior to the modifications, the Orion was used as a shuttle barge on the West Coast, moving upper stages from manufacturing sites to test stands.

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September 12, 1967

IMMEDIATE RELEASE

Release No. 67-184

HUNTSVILLE, Ala. -- About 20 representatives of another government agency which provides valuable support to the National Aeronautics and Space Administration across the nation will visit the NASA-Marshall Space Flight Center Sept. 19-20.

Led by Maj. Gen. John A. Goshorn, deputy director, Defense Supply Agency, Washington, D. C., the group includes eight members of Goshorn's Washington staff and 11 regional directors of the Defense Contract Administration Services.

The men support NASA in areas of contract administration, quality control, and production surveillance at various industrial plants in each region. These firms, or "vendors" supply various hardware items to the nation's space program.

It will be the first time the representatives have visited the Marshall Center as a group. They were invited by Dr. Wernher von Braun, director of MSFC, who heads the Saturn rocket development work for NASA.

Gen. Goshorn's staff members scheduled to attend are Don Brazier, comptroller, Defense Supply Agency; Col. Charles A. Sanford, chief, Office of Management Control; Col. Edward H. Robertson, executive director, Contract Administration; Capt. F. G. Scarborough, executive director, Quality

Assurance; Col. Leigh W. Worthing, chief, Systems Support Division; Lt. Col. Michael J. Tashjian, executive officer, Contract Administration Services; James S. Groupe, executive director, Production; and Capt. James C. Bradford Jr., assistant executive officer, Contract Administration.

Regional directors who will fly to Huntsville for the meeting include Brig. Gen. Arthur E. Fxon, Los Angeles; Brig. Gen. Walter M. Vann, New York; Col. Loren P. Murray Jr., Atlanta; Col. Frank A. Bogart, Boston; Col. John P. Gibbons, Chicago; Col. Norman T. Dennis, Cleveland; Capt. Walter G. Normile, Dallas; Col. Kenneth R. Johnson, Detroit; Col. Gerald Johnson Jr., Philadelphia; Col. William K. Ashby, San Francisco and Capt. Raymond S. Sullivan, St. Louis.

The military personnel represent the Army, Navy and Air Force.

Hosts at the Marshall Center during the two day meeting will be Brig. Gen. Edmund F. O'Connor, director of MSFC's Industrial Operations, and Ollie M. Hirsch, chief of the Contracts Office.

In his invitation to Gen. Goshorn, Dr. von Braun said he wanted the officials "...to observe firsthand the magnitude and complexity of our programs and facilities."

In addition, Dr. von Braun said "In carrying out our assigned missions in the furtherance of space exploration, my activity will require increased participation by your Defense Contracts Administration Services."

Marshall Center employees who will deliver presentations on various facets of the operation include Dr. von Braun; Jay Foster, Hermann Weidner, Gen. O'Connor; William Teir, Dr. Arthur Rudolph, William Brown, Leland Belew, Jim Bradford, Wallace Jeancon, John Goodrum, William Morrow, Dr. Preston Farish, Dieter Grau, Garland Buckner, and Hirsch.

Included on the program is a tour of various laboratories.

# # #

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September 19, 1967

IMMEDIATE RELEASE

Release No. 67-191

HUNTSVILLE, Ala. -- Today's space program is truly a joint effort of both military and civilian agencies, the senior Air Force officer in North Alabama said last night "...and there exists a cooperative give-and-take relationship in the finest sense."

Brig. Gen. Edmund F. O'Connor, who has directed the NASA-Marshall Space Flight Center's Industrial Operations since late 1964, said one of the largest military inputs into the NASA effort is in the area of personnel. He said nearly 300 military personnel are now on loan to NASA and a number of them are astronauts.

Speaking to about 100 members of the Tennessee Valley Chapter, Air Force Association at the Officers' Club on the 20th anniversary of the Air Force, Gen. O'Connor said Air Force people have never faced a lack of challenges and added that it doesn't look like there ever will be.

In the area of space exploration, this is exemplified by the Air Force's manned orbiting laboratory program and its support to the NASA Apollo program.

MORE

Gen. O'Connor cited other areas in which military services support NASA as follows:

---The Air Force operates the national test ranges at Patrick Air Force Base, Florida, and Vandenburg Air Force Base, California, from which all space missions are launched.

---At the Arnold Engineering Development Center, just outside of Tullahoma, Tenn., the Air Force conducts high altitude flight simulation tests for NASA on the Saturn's J-2 engine.

---NASA has built and its contractors use the Rocket Engine Test Site at Edwards Air Force Base, Calif., for acceptance testing of the Saturn rocket's powerful F-1 engines.

---Air Force plant representatives perform contract administration services on Saturn contracts at the McDonnell Douglas plant at Huntington Beach, Calif.; Rocketdyne's plant at Canoga Park, Calif., and at the Boeing Company plant at Wichita, Kansas.

Gen. O'Connor said, in addition to himself, there are 16 Air Force officers assigned to the Marshall Center's Industrial Operations and other military personnel are assigned to various Marshall Center offices.

He called attention to the extensive recovery effort the Department of Defense puts forth in support of NASA -- bringing back the astronauts and spacecraft from manned space flights.

He said "the support is not one-sided -- NASA readily reciprocates whenever needed." He cited the Manned Orbiting Laboratory as an example where NASA has made available all technology, operational procedures, and experience obtained from the Gemini program.

Gen. O'Connor said "This interchange of ideas, technology, hardware and personnel, is helping to make our progress in space possible."

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September 19, 1967

IMMEDIATE RELEASE

Release No. 67-192

HUNTSVILLE, Ala. -- The three Pegasus spacecraft launched by the National Aeronautics and Space Administration in 1965 have far exceeded the most optimistic expectations and are still operating as the end of a one-year lifetime extension draws near. The extension expires October 1.

They have completed their assigned tasks -- to measure the meteoroid environment of near-earth space -- and have telemetered back to earth mountains of information on other subjects of vital interest to space scientists.

The Pegasus satellites were launched for the NASA Office of Advanced Research and Technology from Cape Kennedy aboard the last three Saturn I launch vehicles on February 16, May 25 and July 30, 1965.

Scientific results of Project Pegasus are covered in an interim report recently prepared by the NASA-Marshall Space Flight Center's Space Sciences Laboratory.

The planned lifetime for each satellite was 18 months. Shortly after Pegasus I passed its 18th month in orbit, NASA approved extending the life-times for one year.

The three satellites have performed well. The findings have been accepted by scientists with confidence because of the great amount of data on which they are based.

The satellites, by operating far beyond their design lifetimes, have provided worthwhile extra dividends in the form of additional information on Van Allen belt radiation, earth albedo (reflectivity), the solar constant, orbital and gyroscopic motions of rigid bodies, degradation of surface coatings under space environment conditions, thermal control systems, and the lifetime of electronic components in space operations.

Extending the lifetimes of the Pegasus satellites has enhanced the data on hand and given researchers a chance to obtain new data in fields for which Pegasus was not designed originally.

Meteoroid penetrations recorded as of May, 1967 totaled 1,997.

Bonus information in the field of radiation has also been gathered. Although the primary objective was to count meteoroids penetrating the detector panels, each Pegasus was also equipped with a two-channel radiation spectrometer for measuring trapped electrons with a minimum of proton background. The count rate output was sampled every five minutes.

The original purpose for the radiation count was to determine the electron environment encountered by the detector panels. Researchers feared that electrons would be deposited in the dielectric material in great enough

numbers to cause a breakdown (short) which would erroneously indicate a meteoroid impact. Analysis of the radiation data and meteoroid data has proven that radiation did not cause significant spurious meteoroid counts.

Pegasus satellites have also provided unique and extremely valuable data on the South Atlantic anomaly, that region where the Van Allen radiation belts dip nearest to the earth.

Several satellites with charged particle detection systems more sophisticated than those on Pegasus have recorded data in this area, but all those satellites had relatively short lifetimes. Before Pegasus, a long-term investigation of the South Atlantic anomaly had never been completed successfully.

Electron count peaks for each day in the anomaly were plotted as a matter of record-keeping. Scientists now know that the count rises when a Pegasus reaches apogee while passing through the anomaly and drops when the craft reaches perigee in the region.

Each Pegasus carried a thermal control coatings experiment package with four coating samples. Black-coated sensors were used as references. One of the other coatings experienced an almost instantaneous degradation of about 30 per cent, apparently due to an unexpected vacuum effect.

The second coating, a known degradable, leveled off after some time. The other coating, which is used on the Apollo spacecraft, apparently underwent no appreciable degradation.

Temperature data from the coatings experiment package provided a convenient source of input for calculations of the earth's albedo.

Values of earth albedo obtained were plotted as a function of the corresponding earth longitudes. The resulting curves correspond to widely separated geographic regions and cover a large variety of topographical features.

Data indicates that relatively small magnitudes of albedo correspond to the low reflectivity of ocean waters. Predominant cloud masses correspond to large peaks in the albedo curve -- a striking illustration of the effect of massive cloud formations.

Observations of the orientation of the Pegasus satellites -- telemetered from onboard sun and earth sensors -- motivated extensive research on analytical methods for describing the rotational motion of orbiting triaxial rigid bodies.

The result of this research has been the development of a new first-order theory for the rotational motion of triaxial satellites. The results are applicable to natural or artificial orbiting bodies.

Information on the third Pegasus is continually being reduced because that craft carries 48 detachable "coupons" which could be removed easily by an astronaut in an extravehicular operation. Retrieving the coupons would provide unique and extremely valuable information, researchers say.

The coupons, each bearing about 40 small samples of various coatings, have been exposed to the meteoroid environment long enough to have accumulated a sizable number of meteor-produced craters in their surfaces. If the location of these craters were known, it would help clear up uncertainties about the distribution of microscopic meteoroids.

In the field of electronics, information gained from the three Pegasus satellites has been of tremendous value to space scientists.

The combined operation time of the three -- a total of six years -- without any loss of prime experiment data due to electronic failure has proven again the advantage of a design concept using redundancy.

The reliability and length of operation of electronic subsystems have greatly exceeded all expectations. For example, batteries with a life expectancy of 14 months have operated for two years or more in the space environment with only one minor problem.

One problem common to all three Pegasus satellites is failure of the regulator system used to recharge the batteries from the solar panels, but this problem has not yet been serious. Although the best available components were used, they were not expected to function as long as some other electronic parts.

No electronic failure has seriously degraded the performance of any Pegasus satellite. The most serious failure resulted only in the intermittant loss of housekeeping data (temperatures, voltages, levels of operation, etc.) on Pegasus II.

Each satellite has about 90 major electronic subassemblies, or about 270 for all three craft. Of this 270, only 10 subassemblies have failed.

Also, each satellite contains a magnetic core memory which uses 30,080 magnetic cores plus associated electronics. A test was completed recently to test every core on each Pegasus; not a single failure of either cores or their electronics was detected. This fact may very well influence the selection of data-gathering techniques on future spacecraft.

Experience with Pegasus I resulted in the addition of burn-out, blow-out and disconnect circuitry to the meteoroid detector panels of Pegasus II and III, an addition which has proved to be quite worthwhile.

In the few cases of failure of Pegasus II and III spacecraft parts, active alternate packages which had been designed into the system to permit rapid switching corrected the deficiencies within minutes after failure were discovered.

Because of Pegasus successes, a large portion of the circuitry has been selected for use in the SERT II satellite being designed and constructed for the NASA-Lewis Research Center.

Throughout the history of the space program the question of how the space environment affects electronic components has been explored constantly. The three Pegasus satellites offer an excellent opportunity to study such effects since the combined number of systems makes a statistically meaningful sample size.

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September 22, 1967

IMMEDIATE RELEASE

Release No. 67-194

HUNTSVILLE, Ala. -- More than 100 educators from 54 colleges and universities in 17 states and representatives from 15 aerospace firms are expected at the Management Research and Applications Symposium at the NASA-Marshall Space Flight Center here October 25-26.

Registration for the Marshall-sponsored symposium will be at the Sheraton Motor Inn the morning of October 25 with a tour of the Marshall Center slated for the afternoon.

Harry H. Gorman, deputy director, administrative, MSFC, will welcome the attendees at a dinner at the Sheraton beginning at 7 p. m. Speaker after dinner will be Dr. Harper Q. North, vice-president for research and development, TRW, Inc. His subject will be, "Tieing Research and Development to Opportunities."

Four presentations will be made in Morris Auditorium at the Marshall Center the morning of October 26. Following lunch, a panel discussion will be held.

The four morning sessions and the speakers are:

MORE

"Total Systems Concept of Organizational Development," Lt. Col. David I. Cleland, Ph.D., U.S. Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio.

"Matrix Organization: Theory and Application," Dr. Fremont A. Shull, Jr., Southern Illinois University, Carbondale.

"Management by Objectives and What it Means to People in a Research and Development Organization," Gerard F. Carvalho, University of Michigan, Ann Arbor.

"Motivational Research and Application in Management of Space Programs," William A. Hagen, Executive Staff, Marshall Center.

Subject of the afternoon panel discussion will be,"Role of Management Research in the Management Activities of an Organization." Panel moderator will be Charles Bingman, deputy director, organizational and management planning division, National Aeronautics and Space Administration, Washington, D. C.

Members of the panel include: Dr. Edward J. Jones of the Naval Weapons Center, China Lake, Calif., representing government; Dr. Shull of Southern Illinois University and Dr. Albert H. Rubenstein of Northwestern University, Evanston, Ill., representing universities; and Dr. Herbert H. Myer of the General Electric Co., New York, representing industry.

MORE

Educational institutions to be represented include the Universities of Alabama (Tuscaloosa and Huntsville), South Alabama, South Carolina, Georgia, Florida, South Florida, Miami, Texas, Houston, Chattanooga, Tennessee, Oklahoma, Southern Mississippi, Mississippi, Southwestern Louisiana, Kentucky, Louisville, Arkansas, North Carolina, Massachusetts, California (Los Angeles), Wisconsin and Michigan; Augurn, Jacksonville (Ala.), Clemson, Emory, Atlanta, Florida State, Jacksonville (Fla.), Memphis State, Vanderbilt, Oklahoma State, Mississippi State, Louisiana State (Baton Rouge and New Orleans), Tulane, Loyola, Duke, North Carolina State and Southern Illinois Universities; Athens (Ala.), Oakwood, Alabama, Howard, Georgia State, George Peabody, Murray State and Wake Forest Colleges; Alabama and Texas A & Am colleges; and the Georgia, Tennessee and Louisiana Institutes of Technology.

Industries to be represented include: General Electric Co., AVCO Corp., Lockheed Aircraft Corp., The Boeing Co., TRW Systems, North American Aviation, Inc., Kentron Hawaii, Ltd., McDonnell Douglas Corp., Chrysler Corp. Space Div., RCA Service Co., Brown Engineering Co., Northrop Corp., SPACO, Inc., Hayes International Corp., and IBM Corp.

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October 3, 1967

IMMEDIATE RELEASE

Release No. 67-200

MARSHALL SPACE FLIGHT CENTER, Ala. -- Several astronauts from the NASA-Manned Spacecraft Center are visiting in the Huntsville area this week.

The main group of six were scheduled to spend most of the day Tuesday at the local plant of the International Business Machines Corp.

That group is made up of the prime crew for the next manned flight -- Walter M. Schirra, Jr., R. Walter Cunningham and Donn F. Eisele -- plus John Young, Stuart A. Roosa and Charles M. Duke, Jr.

Following a four-hour technical description of the Saturn vehicle instrument unit, which IBM makes for MSFC, the astronauts were scheduled to tour IU assembly and test areas.

Following that they were to come to MSFC to see work in progress relating to the test of Apollo/Saturn access arms -- the "swing-arms" that service the vehicle until launch and provide a walkway for astronaut boarding.

Roosa, Duke and Young were to stay at MSFC Wednesday for additional work in the swing-arm testing area.

MORE

Thursday another group of astronauts -- Joseph P. Kerwin, Alan Bean and Jack R. Lousma -- are to visit in connection with Apollo Applications activities. Kerwin and Lousma will stay over until Friday.

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October 4, 1967

IMMEDIATE RELEASE

Release No. 67-203

MARSHALL SPACE FLIGHT CENTER, Ala. -- An experiment directly related to preparing a spent rocket stage for human occupancy in space was carried out recently under the direction of the NASA-Marshall Space Flight Center at the Arnold Engineering Development Center in Tullahoma, Tenn.

The successful test called for 840 gallons of a super-cold fluid to be deliberately dumped throug a "dead" or inactive rocket engine at a simulated space environment of about 100,000 feet altitude.

Ed Williams, deputy manager of the J-2 Engine Project at MSFC, said both liquid hydrogen and liquid nitrogen flowed through the engine in a test to determine if residual propellants remaining inside the tank following the rocket's boost phase could be dumped in this manner.

Such a dump would pave the way for astronauts to then move inside the orbiting stage and use the tanks as-living quarters for a space station.

The National Aeronautics and Space Administration hopes to turn the stage tankage into an orbiting workshop for astronauts for prolonged stays in space.

Liquid nitrogen was used in lieu of liquid oxygen to lessen the hazards of a fire during this test. During space flights, liquid oxygen is used to burn the liquid hydrogen propellant.

Williams said the experiment was the final test on a single J-2 engine that has been installed in the underground cell at Tullahoma for 18 months and has accomplished 80 tests. Some of the tests simulated restarts of the engine in space -- a duplication of what must take place when astronauts ride the Apollo/Saturn V toward the moon.

Williams said engineers were particularly interested in "side loads" on the engine and other possible damage caused by dumping raw propellant through the engine under simulated space conditions. Apparently no side effects developed, although data is still being studied.

NASA has studied dumping residual propellants through a non-propulsive venting system as an alternate. However, dumping through the engine is the more convenient approach and does not require new hardware on the stage.

During the flight phase, the single J-2 engine powering the top Saturn stage develops about 200,000 pounds thrust.

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October 20, 1967

IMMEDIATE RELEASE

Release No. 67-214

MARSHALL SPACE FLIGHT CENTER, Ala. -- A research team from the NASA-Marshall Space Flight Center's Space Sciences Laboratory here obtained some "very interesting" infrared measurements of the moon's surface during its eclipse early Wednesday (Oct. 18).

Gerhard B. Heller, deputy director of the lab, said the team worked during a total eclipse and had perfect weather for about two and one-half hours, during which about 20 traverses of the moon were made with an infrared radiometer attached to a large telescope.

The team was granted use of the observatory at the University of Georgia at Athens. The observatory, a part of the physics department, has a 24-inch Cassegranian instrument.

With the cooperation of Dr. Donald G. Burckhard, head of the physics department, and Dr. Ernest Reuning, head of the observatory, the team used a liquid helium-cooled, copper-doped germanium detector for the infrared measurements. The instrument uses a filter which limits the radiation to the infrared band from 10 to 12 millionths of a meter.

Other than Heller, the team included Don Cochran, Jim Fountain and Walt Fountain of the Space Sciences Lab and two lab assistants who are employed by Brown Engineering Co. of Huntsville, Manfred Segewitz and Jim Bowling.

The early morning task was completed as a part of the lab's program of infrared physics. The program is supported by the NASA's Office of Space Science and Applications and Office of Advanced Research and Technology.

The purpose of the program is to learn as much as possible about the thermophysical properties of lunar soil. Infrared radiation is due to heat emission from the lunar surface. It allows scientists to draw conclusions about lunar temperatures.

The measurements obtained October 18 will help considerably in the lab's infrared studies of extraterrestrial materials, Heller said. The measurements will be correlated with measurements made in the lab and with theoretical models of the moon, he said.

The infrared measurements help pinpoint "thermal anomalies," spots on the lunar surface which cool off and warm up differently from what one might expect.

For example, white light measurements of the crater Tycho show a sharp upward blip as the telescope passes across that area of the moon's surface, but an infrared scan will show a sharp downward blip at that same point. During an eclipse, however, Tycho stands out in the infrared scan as a hot spot against a cooler background.

Opportunities for such successful exercises are not very frequent, Heller said. Only twice a year is the moon in a position in which the earth is between it and the sun -- and the earth is not always in a direct line, which would cause a total eclipse. Even when the earth and moon are directly in line, the weather is not always suiteable for observing the eclipse.

The eclipse Wednesday morning showed a dark red moon. This is what results when the atmosphere surrounding earth is clear and the sun's rays are refracted to light the moon with a red glow while it is in the earth's shadow.

Heller said Wednesday's effort was highly successful -- good weather, all measurements made successfully, plenty of time for measurements, and all equipment functioned well. Evaluation of data is underway.

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November 7, 1967

IMMEDIATE RELEASE

Release No. 67-221

MARSHALL SPACE FLIGHT CENTER, Ala. -- The job of acquiring data before and during a rocket flight -- and then reducing it to a useable form -- has increased at least 100-fold since the Redstone missile era about 10 years ago.

Rocket scientists in those days averaged about 30 measurements on each flight, in such areas as temperature, pressure, velocity and flight direction change.

The Saturn V space vehicle collects information from almost 3,000 points on itself -- and this does not include position data being gathered from stations around the world.

The logistics problem of getting the recorded data back from all the receiving points is tremendous in itself. Data collected all over the world must be hustled aboard the earliest airplanes enroute to the United States.

A special "data plane" will leave the NASA-Kennedy Space Center several hours after the Saturn V launch to bring launch vehicle data recorded at the launch site back to the NASA-Marshall Space Flight Center. The plane will stop at New Orleans to drop off first stage data for reduction at the computer center at Slidell, La.

Engineers are hoping that two camera capsules to be ejected from the giant vehicle after first stage separation will be recovered from the Atlantic Ocean and returned to Cape Kennedy in time to be placed aboard the data plane.

Tapes, strip charts and data in various other forms will be gathered by stations of the Manned Space Flight Network worldwide.

Once the data has been reduced, it will be sent out to engineers who placed requirements for specific information. Some data will require reproduction into several copies because more than one requirement exists.

Data from the first flight of the Saturn V is extremely important to all engineers involved, government and contractor. Since it is the first launch of such a tremendous vehicle, there is no existing flight data -- only calculations of what is expected, based on data gathered during ground tests and flights of other rocket systems.

Requirements for various types of information in diverse forms by multitudes of engineers and scientists, both government and industry, increased in scope and complexity so greatly that a standard data nomenclature list had to be created. The list is divided into four elements -- major system and subsystem, data description, record presentation, and station.

The nine major systems are command, communications, facilities and environmental, launch control center, meteorological, photographic, telemetry, tracking, unified S-Band and miscellaneous.

Data description covers several dozen different types of data, such as analog record, calibration data, combined trajectory, command history, data reduction summary, electron density profile, impact coordinates, insertion parameters, measurement program, signal strength, test reports, verification records and weight estimates.

Data may be presented by book, card, chart, film, plot, sheet, strip chart, tabulation, tape (analog magnetic or digital magnetic) or teletype.

Station or location data refers to the site where the data is being recorded, such as any of the Manned Space Flight Network stations, Launch Complex 39, NASA space centers or ships.

The data Saturn V will collect will go a long way toward verifying or disproving caluclations -- and toward getting man to the moon and back this decade.

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November 21, 1967

IMMEDIATE RELEASE

Release No. 67-229

MARSHALL SPACE FLIGHT CENTER, Ala. -- The first of six short courses in a new electrical wiring technique -- flat flexible cabling -- will be conducted by the University of Alabama, Huntsville, early in 1968.

The five-day course, to begin January 22, is open to designers from industries nationwide. Spaces will be available for 50 attendees at each session.

The course is sponsored jointly by the University, the National Aeronautics and Space Administration, the Department of Commerce and the Institute of Printed Circuits.

Wilhelm Angele of the Marshall Center's Astrionics Laboratory will keynote the meeting. A major contributor to the new technology, he holds a number of patents on tools and techniques.

Angele will also conduct a half-day tour of pilot production tooling and testing facilities at the Marshall Center as a part of the course.

MSFC is demonstrating the facilities as a part of its efforts, through the Technology Utilization Office, to pass on to industry and the public space program developments which would possibly have uses in fields other than space.

MORE

The new flat cabling technology has widespread implications, especially in the aircraft, automotive, communication, computer and home-building fields.

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December 5, 1967

IMMEDIATE RELEASE

Release No. 67-236

MARSHALL SPACE FLIGHT CENTER, Ala. -- The International Business Machines Corp. had been funded $1,292,218 for configuration management of 27 instrument units which they are providing to the NASA-Marshall Space Flight Center for use on the Uprated Saturn I and Saturn V launch vehicles.

The agreement is effective through June, 1970.

IBM is charged with the responsibility of conducting formal reviews on instrument unit design, manufacturing, assembly, testing and delivery under this contract. They assumed the configuration management responsibility in June, 1966.

The instrument unit functions as the "brain" of the Saturn vehicles. It contains all the guidance and computer equipment that direct the vehicles in flight.

This supplemental agreement brings the IBM contract to a total of $200,644,441.

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December 11, 1967

IMMEDIATE RELEASE

Release No. 67-237

MARSHALL SPACE FLIGHT CENTER, Ala. -- NASA has awarded Aero Spacelines, Inc., of New York City a one year $2,725,000 extension to its current fixed price contract for air cargo services.

The extension is effective through November 1968.

The company provides air transport service for engines, stages and other oversized cargo of the Uprated Saturn I and Saturn V launch vehicles for NASA's Marshall Space Flight Center.

Aero Spacelines' two specially adapted craft the Guppy and the Super Guppy are among the world's largest cargo planes. In the last year they have flown Saturn cargos more than 376,000 miles.

The total contract value dating back to 1963 amounts to $11,591,633.

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December 12, 1967

IMMEDIATE RELEASE

Release No. 67-239

MARSHALL SPACE FLIGHT CENTER, Ala. -- Orbital workshop design requirements are being discussed here this week by about 100 representatives of government and industry.

The four-day meeting ends Thursday.

Design review subboards made up of specialists in the major workshop areas are reviewing design documentation at this meeting.

Monday the specialists discussed structures, mechanical systems and propulsion. Instrumentation and communications were topics under discussion on Tuesday.

A crew station review will be considered Wednesday and Thursday the meeting will conclude with a review of electrical systems.

Representatives at the sessions include some 40 persons from industry and government organizations outside of Huntsville.

A five-day Orbital Workshop mockup review will begin here in late January. A Douglas-built mockup containing the most recent design concepts will be used in the January review.

The space agency plans to use the Orbital Workshop as an early space station to study man's ability to live and work for long periods in space. A Saturn S-IVB upper stage will be modified on the ground so that it may be easily converted by astronauts once the stage has propelled itself into orbit.

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December 15, 1967

IMMEDIATE RELEASE

Release No. 67-240

MARSHALL SPACE FLIGHT CENTER, Ala. -- For the record, here's one additional bit of information regarding the performance of the first Saturn V space vehicle, which was launched November 9.

NASA-Marshall Space Flight Center engineers have concluded that earlier reports that a vent valve failed to close prior to third stage reignition were in error.

Dr. Arthur Rudolph, manager of the Saturn V program, said a close study of all of the data from the successful flight indicates that the vent valve did close as programmed. The report that it failed to close resulted from faulty sensor recordings, Dr. Rudolph said.

According to Dr. Rudolph, the valves remain open while the third stage "hibernates" in orbit, in order to relieve pressure on the propellant tanks. Just before the single engine is re-started, a flight sequencer is supposed to close the vents to allow a pressure build-up.

That build-up did occur and the engine re-ignited as planned. Further study of telemetry from receiving stations around the world indicated that the valves did close as planned.

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December 15, 1967

IMMEDIATE RELEASE

Release No. 67-241

MARSHALL SPACE FLIGHT CENTER, Ala. -- No one knows who the talented 20 high school students will be. The only definite fact is that they will come from Tennessee, Mississippi, Louisiana and Alabama.

The National Aeronautics and Space Administration and the National Science Teachers Association are searching those four states for 20 of their most prominent high school (grades 10-12) science scholars to honor their accomplishments.

NASA's Marshall Space Flight Center is co-sponsoring a Youth Science Congress March 20-22, 1968, that will give the selected students an all-expenses-paid two-day visit to Huntsville, Alabama and the Marshall Center, an opportunity to make an oral presentation of their winning scientific papers, a bronze commemerative medallion and a certificate of participation and recognition endorsed by Dr. Wernher von Braun, Marshall Center director.

Additionally, the students will take part in question and answer sessions with each other and scientists and engineers at the NASA facility.

Here's how the program works.

MORE

Students who are doing experimental, investigative or research science projects simply write a 1,000 word summary of their project, ask their science teacher to request entry forms from the NSTA and send the summary and completed forms to the regional representative listed on the application.

All the material must be completed and mailed by February 10. The NSTA address is: NSTA Headquarters, 1201 Sixteenth Avenue, N.W., Washington, D. C., 20036.

From the applications an evaluation board of six members, three from the Marshall Center and three from the Huntsville school system, will select the 20 best entries from the four-state area. The winners will be notified by March 1.

Eleven other NASA installations from California to Massachusetts are conducting similar searches to honor talented science students during March and April. The Marshall Center is conducting two congresses -- the one at Huntsville and another at St. Louis, for Arkansas and Missouri, April 3-5.

This is the fifth year for this program.

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December 20, 1967

IMMEDIATE RELEASE

Release No. 67-243

MARSHALL SPACE FLIGHT CENTER, Ala. -- The first stage of the 11th Uprated Saturn I launch vehicle (SA-211) was successfully static fired at the NASA-Marshall Space Flight Center's Test Laboratory here at 4:40 p.m. yesterday.

The 1.6 million pound thrust booster's eight H-1 engines operated 35 seconds.

A full-duration captive firing of the booster -- 145 seconds -- will be conducted before it is shipped back to the Marshall Center's Michoud Assembly Facility, New Orleans, La., for post-static firing checkout.

Chrysler Corp., prime contractor for the Uprated Saturn I booster, conducted the test.

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December 20, 1967

IMMEDIATE RELEASE

Release No. 67-244

MARSHALL SPACE FLIGHT CENTER, Ala. -- In the 1967 fiscal year which ended June 30, the National Aeronautics and Space Administration awarded contracts in Alabama totaling $241,233,000.

The business went to 104 companies in 10 Alabama cities. Most of it was in support of the Marshall Space Flight Center here, and was connected with the Saturn rocket program.

In addition, the Marshall Center's direct government payroll for the same period amounted to some $80 million. Therefore, the space agency contributed about $320,000,000 to the area's economy in the 12-month period.

The number of contract dollars was not much different from the level of the past few years. In the five fiscal years (1963 through 1967) ending last June 30, NASA spent $1,122,018,000 in Alabama for contract purposes, not counting direct payroll dollars at MSFC.

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December 26, 1967

IMMEDIATE RELEASE

Release No. 67-247

MARSHALL SPACE FLIGHT CENTER, Ala. -- The Marshall Center ended 1967 with a visit December 12 by President Johnson who observed huge space boosters being produced at the Michoud Assembly Facility nearly identical to the one which launched the nation's first Apollo/Saturn V rocket last month.

NASA Administrator James E. Webb left the Presidential tour to drop by the Marshall Center in Huntsville for a three-hour briefing on the Apollo Applications Program (AAP). AAP is the manned flight program that follows the mainstream Apollo lunar landing effort.

Other highlights of 1967 included the naming of new Apollo/Saturn astronaut crews by the Manned Spacecraft Center. They will fly atop both Uprated Saturn I, which is now rated for manned flight, and the Saturn V, which is expected to become man-rated after a few successful research and development flights.

Two of the six Saturn launches scheduled in 1968 are expected to be manned.

The astronauts and their flight missions are:

Walter Schirra, Donn F. Eisele and Walter Cunningham, the first manned Uprated Saturn I; James A. McDivitt, David R. Scott and Russell L. Schweickart, first manned Saturn V; Frank Borman, Michael Collins and William A. Anders, second manned Saturn V.

MORE

As the year began, MSFC Director Wernher von Braun and three other NASA officials were enroute to Antarctica to look into environmental and logistic factors that might relate to the planning of future space missions and hardware.

The second stage (S-II) of the Saturn V and the first flight model to be static tested was shipped to the NASA-Kennedy Space Center in Florida from the Mississippi Test Facility January 17. Other first (S-IC) and second stages began flowing into the Mississippi Test Facility during the year and all were successfully tested.

At the year's end, S-IC-6 and S-II-4 are being prepared for tests.

During the year, MSFC was assigned a number of new objectives. It was officially designated to design and build the first multiple docking adapter which will be the central space docking terminal for early Apollo Applications missions. The adapter can accommodate the S-IVB workshop, the Apollo command and service module and the Apollo telescope mount, thus allowing a "clustered" embryonic space station to operate in orbit. Other future payloads could also connect to the adapter.

The Martin Company of Denver was selected as the AAP integration contractor.

Meanwhile, a critical start and restart of the single engine on the third stage of the Saturn V rocket was successfully carried out in March at the Arnold Engineering Development Center's underground test cell at Tullahoma, Tennessee. The chamber simulated high altitude environmental conditions during the test. The engine successfully carried out the feat on the third stage during the first launch of the Saturn V.

The Apollo 204 launch vehicle, originally scheduled to fly astronauts Virgil Grissom, Edward White II and Roger Chaffee who died in a flash fire January 27, was re-oriented to fly the first unmanned lunar module. That mission is scheduled soon.

Engineers completed a 10-week first phase of Apollo/Saturn V dynamic testing at the Marshall Center in April which helped to pave the way for the first launch of the vehicle.

The Mississippi Test Facility that same month successfully static tested the second S-II flight stage.

Thirteen astronauts visited the Marshall Center at the end of April for a briefing on the Saturn V launch vehicle.

About 10 days later, 10 more astronauts, outfitted in spacesuits, performed tasks in a Saturn S-IVB orbital workshop mockup.

Bracing himself in the blustery weather, Vice President Hubert Humphrey visited the Marshall Center May 22 and 23 for a series of briefings on the space program. He also addressed MSFC and U.S. Army employees from the steps of the Headquarters building.

The highlight of the year, from a "hardware" viewpoint, came on November 9, when the first Saturn V vehicle was fired from the Kennedy Space Center. The vehicle performed flawlessly, sent an Apollo spacecraft 11,400 miles out from earth.

That flight, the first of 15 planned, came more than five years after the initiation of the Saturn V project at MSFC in early 1962.

MORE

And Christmas week, the Marshall Center delivered all stages for the third Saturn V to the Kennedy Space Center launch site -- the second being at KSC in launch preparations at present.

Severe budget cuts forced Marshall Center's management to announce the reduction of about 700 personnel effective January 13. Travel was ordered reduced by 10 per cent and other administrative costs were to be reduced by 15 per cent. Notices to affected personnel was issued December 6.

MSFC ended 1967 with about 7,300 employees earning in excess of $85.1 million during the calendar year. While the number of employees will decrease early next year, the projected 1968 payroll is somewhat greater, because of a 4.5 per cent pay increase approved by the Congress and the President this month.

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